1071. Bauer (H.), Wallace (G. L.), & Sheldon (W. H.). **The effects of cortisone and chemical inflammation on experimental mucormycosis (Rhizopus oryzae infection).**—*Yale J. Biol. & Med.*, **29**, 4, pp. 389–395, 6 fig., 1957.

At the Dept of Pathology, Emory University School of Medicine, Georgia, administration of cortisone to rabbits for 4–23 days preceding inoculation with *R. oryzae* slightly decreased host resistance but did not lead to widespread infection.

1072. Chick (E. W.), Evans (J.), & Baker (R. D.). **Treatment of experimental mucormycosis (Rhizopus oryzae infection) in Rabbits with amphotericin B.**—*Antibiot. & Chemother.*, **8**, pp. 394–399, 1958; **The inhibitory effect of amphotericin B on localized Rhizopus infection (mucormycosis) utilising the pneumoderma pouch of the Rat.**—*Ibid.*, **8**, pp. 506–510, 1958.

In the 1st study at Duke University School of Medicine, Durham, N. Carolina, lesions were virtually absent in rabbits inoculated intravenously with *R. oryzae* spores and treated via the same route with amphotericin B. In the 2nd, amphotericin B was shown to inhibit the germination of spores of *R. oryzae* introduced into the pneumoderma pouch of a rat. Viable spores were recovered 14 days after inoculation and the histological pattern in treated and untreated rats was similar. Although the effect observed was only fungistatic the authors consider that further study of the use of this drug is warranted.

1073. Gatling (R. R.). **Gastric mucormycosis in a newborn Infant.**—*Arch. Path.*, **67**, 3, pp. 249–255, 7 fig., 1959. [7 ref.]

The *Mucor* sp. responsible for the death of a 16-day-old female at the Lewis-Gale Hospital, Roanoke, Virginia, produced in the alveoli and interstitial tissue adjacent to the left lung base numerous large, continuous hyphae which were invading the vessel walls. The alveolar walls of numerous areas in both lungs were thickened and contained many uninuclear cells. The alveolar septa at the same sites contained large numbers of bodies staining deep rose with Gridley's reagent. Most cells with little or no reaction to the same stain were present in abundance in the alveoli of both lungs and connective tissue round the bronchi and trachea, while the entire stomach wall was permeated by hyphae, mast and mononuclear cells, granulocytes, and spores. Involvement by the fungus also extended to the liver, spleen, pancreas, colon, and diaphragm. Pure cultures could not be obtained.

1074. Montenegro (M. R.), De Brito (T.), Lombardi (J.), & Lacaz (C. da S.). **Mucormicose intestinal. Registro de dois casos.** [Intestinal mucormycosis. Record of 2 cases.]—*Rev. Hosp. Clin. Fac. Med., S. Paulo*, **14**, pp. 59–64, 3 fig., 1959. [English summary.]

Mucormycosis of the digestive tract in a 10-month-old female mulatto and in a 1-yr.-old female Brazilian diagnosed on the basis of histological examination, is claimed as a new record for Brazil. Necropsy was performed at the Dept of Pathological Anatomy, São Paulo. Chronic malnutrition was a feature common to both cases. In the 1st, an ulcerative enteritis, non-septate fungal hyphae were observed both in the superficial parts of the ulcer in the small intestine and in the lymphatic and blood vessel lumina. In the 2nd, an ulcerative colitis, lesions occurred in the large intestine. Non-septate hyphae of the parasite were seen inside the glandular lumina as well as in the corium, submucosa, muscularis, and serosa. Vessel lumina were dilated and their walls partly infiltrated. The non-septate mycelial filaments,

approx. 15 μ in length, were Gram+ and negative to Gridley's stain but stained black by Gomori's stain, red by P.A.S., and reddish-brown by indigo carmine.

1075. Josefiak (E. J.), Foushee (J. H. S.), & Smith (L. C.). **Cutaneous mucormycosis.**—*Amer. J. clin. Path.*, **30**, 6, pp. 547–554, 4 fig., 1958.

The authors report from the Bowman Gray School of Medicine, N. Carolina Baptist Hospital, a histologically-proved case of mucormycosis in a 26-yr.-old white man with moderately severe diabetes, who had a spreading ankle ulcer. During his 6-day stay in hospital his diabetes was stabilized and biopsies were taken from the ulcer. A thrombosed blood vessel and hyphae were found. The ulcer healed slowly during 4 months, iodine being applied, and potassium iodide being given orally.

1076. Fienberg (R.) & Risley (T. S.). **Mucormycotic infection of arteriosclerotic thrombus of the abdominal aorta. Report of a case.**—*New Engl. J. Med.*, **260**, 13, pp. 626–629, 4 fig., 1959.

The fungus observed at autopsy in a 45-yr.-old female patient at Beverly Hospital, Massachusetts, was characterized by non-septate, very long hyphae, many branching at right angles from the main filaments and varying greatly in width. They were more numerous in the thrombus than in the wall of the aorta. The invasion of the fungus, which completely occluded the lumen of the aorta, is believed to have been facilitated by the administration of tetracycline following an appendectomy 2 months after the onset of the symptoms.

1077. Mackinnon (J. E.). **Amfotericina B en la blastomicosis sudamericana experimental.** [Amphotericin B and experimental South American blastomycosis.] —*An. Fac. Med. Montevideo*, **43**, 5–6, pp. 201–206, 1958. [English summary.]

Sixteen mice were inoculated intravenously with a yeast-phase culture of *Paracoccidioides brasiliensis* and immediately treated with a subcutaneous dose of 2 mg. amphotericin B daily for 10 days. After an interval of 30 days a 2nd course of treatment was administered. A similar group of mice was not treated. The survival time was 59·8% of the 150 days' experiment period in the non-treated group and 85% in the treated group. One non-treated and 5 treated animals were alive at the end of the experiment and they all showed evolutive lesions.

Amphotericin B was also administered 2 and 3 months after the intra-peritoneal inoculation of *P. brasiliensis* for a period of 20 days. The number of survivors 75 days after the end of the treatment was higher among the treated mice, which usually showed localized lesions.

The sensitivity to amphotericin B of 6 cultures of *P. brasiliensis* recovered from 6 treated mice with generalized lesions was identical with that of the original culture.

1078. Neto (V. A.) & Del Negro (G.). **Prova da proteina reactiva C na blastomicose sul-americana.** [The C-reactive protein test in South American blastomycosis.]—*Hospital, Rio de J.*, **54**, 6, pp. 863–868, 1958.

The test was positive with the serum of 18 of 20 patients. One of the negative sera was from a clinically cured patient. Nevertheless, 2 positive reactions were recorded in the other 2 clinically cured patients. The blood sedimentation rate was normal in 7 cases and the 2 negative C-reactive sera were from this group.

1079. Lacaz (C. da S.), Bechelli (L. M.), Del Negro (G.), Wertheimer (L. G.), Neto (V. A.), & Rios (M.). **Blastomycose com lesões ósseas. Registro de três casos.** [Blastomycosis with bone lesions. Record of 3 cases.]—*Rev. Med. Ciurg. Farm., Rio de Janeiro*, 265, pp. 204–220, 3 fig., 1958.

The authors report from the University of São Paulo 3 cases of South American

blastomycosis (*Paracoccidioides brasiliensis*) with bone lesions. The 1st was that of a white 15-yr.-old Brazilian male. Lesions occurred in the frontal bone and ribs; the pelvis was affected with large bone lesions of varying size and indefinite contours in the upper part of the ilium and in the ischio-pubic branches; medullar and subcortical lesions occurred in the left humerus, partially destroying the compact layer from the inner face. Treatment with sulphadiazine and gantrisine resulted in reconstruction of the outer layer in the frontal region, and the destructive focus of the pelvis showed clear indications of bone regeneration. The 2nd case was a 25-yr.-old Brazilian mulatto workman with lesions in the ribs. Initial treatment was with 'poliseptil' and subsequently sulphadiazine alone in the usual intensive doses. There was a gradual regression of the adenopathies, including abdominal, possibly due to radiotherapy. Vitamin treatment was used for the general condition. The patient was discharged after 4 months and treatment at home prescribed. The 3rd case, which terminated fatally, was of a 47-yr.-old white Brazilian shoemaker with a destructive process located in the ungual phalanx of the small finger of the right hand and considerable inflammation of the soft parts adjacent to the lesions. The various treatments had no appreciable effect. The authors are of the opinion that in all 3 cases bone lesions were secondary in a process of tegumentary blastomycosis.

1080. Duran (R. J.), Coventry (M. B.), Weed (L. A.), & Kierland (R. R.). **Sporotrichosis : a report of 23 cases in the upper extremity.**—*J. Bone Jt Surg.*, **39**, A(6), pp. 1330–1342, fig., 1957. [*Biol. Abstr.*, **33**, No. 2378, 1959.]

A general review from the Mayo Clinic, Rochester, Minnesota.

1081. González Benavides (J.). **Sporotrichose als Berufskrankheit in Töpfereibetrieben.** [Sporotrichosis as an occupational disease in potteries.]—*Berufsdermatosen*, **7**, 1, pp. 22–29, 1959. [Spanish, English, and French summaries.]

All the 16 persons infected by *Sporotrichum* [*schenckii*] in the potteries at Monterey, Nuevo León, Mexico, visited by the author in 1952, were engaged in packing earthenware, mostly using 'Zacate' [forage] grass as packing material. Replacement of the latter by cardboard and the institution of hygienic precautions led to a cessation of the attacks, and an inspection in 1957 revealed no further cases.

1082. De Magalhães (O.). **Ensaios de Micologia. Contribuïção para o conhecimento das esporotricoses.** [Mycological studies. A contribution to the knowledge of sporotrichosis.]—*Mem. Inst. Osw. Cruz*, **56**, 1, pp. 79–84, 4 fig., 1958. [English summary.]

Report of 2 cases of *Sporotrichum schenckii* infection showing single lesions [cf. **3**, No. 147].

1083. Russo (E.). **Novos casos de esporotricose pelo Sporotrichum schenckii.** [New cases of sporotrichosis due to *S. schenckii*.]—*Hospital, Rio de J.*, **53**, 5, pp. 607–615, 1958.

Eight cases: 5 women, 3 men; 5 in the upper limbs, 3 in the lower.

1084. Cellerino (N. A.). **Un caso de esporotricosis linfangítica localizada.** [A case of localized lymphangitic sporotrichosis.]—*Sem. méd., B. Aires*, **113**, 24, pp. 1099–1100, 1958.

A case of upper limb infection in a man from the province of Corrientes, Argentina.

1085. Ritchie (D.). **Ear fungi.**—*Mycologia*, **49**, 1, pp. 159–160, 1957.

At the U.S. Naval Dispensary, Coco Solo, Panama, Canal Zone, cultures were made on glucose yeast extract agar from smears from 50 cases of otitis. In all cases bacteria were present and apparently involved: 30 yielded *Staphylococcus*

aureus, 10 *Pseudomonas* sp., and 10 unidentified Gram — rods. Only 10 yielded fungi, and these were common *Aspergillus* spp. (*A. niger*, *A. flavus*, and *A. flavipes*) which were most probably contaminants. The lack of cerumen in the affected canals was noteworthy.

1086. Frágner (P.). **Příspěvek k mykofloře zvukovodů.** [A contribution to the mycoflora of the auditory canal.]—*Čes. Mykol.*, **13**, 2, pp. 119–124, 1959. [German summary.]

At the Krajsk Hygiene-Epidemiologic Station, Prague, Czechoslovakia, fungi were seldom found in normal ears (39 of 300) and when present it was mostly a matter of the incidental occurrence of small numbers of spores. In 30 patients with ear diseases, positive to mycological examination, *Aspergillus* spp. were present in 10 (33%, *A. niger*, 3), yeast-like micro-organisms (including *Candida albicans* 7, *C. parapsilosis* 2, and *C. guilliermondii* and *C. tropicalis* one each) in 17 (56·6%), and other fungi (including *Fusarium* sp., 5, *Sporotrichum* [*Cladosporium*] *gougerotii*, 4) in 21 (70%). In some cases there were multiple fungal infections.

Findings are tabulated.

1087. Vanbreuseghem (R.). **Les cardiopathies mycosiques.** [Mycotic cardiac infections.]—*Bull. Acad. Med. Belg.*, Ser. VI, **24**, 3, pp. 233–265, 8 fig., 1959. [64 ref.]

The author discusses some cases of the most frequently encountered mycoses of the heart, viz. those due to *Actinomyces israelii*, *Blastomyces dermatitidis*, *Coccidioides immitis*, *Histoplasma capsulatum*, and *Candida* spp. No case of cardiac infection by *Aspergillus* or *Nocardia* appears to have been reported, and *Paracoccidioides brasiliensis*, *Cryptococcus neoformans*, mucormycosis [*Mucor* sp.], and *Sporotrichum schenckii* have each been reported once as infecting the heart. The manner in which fungi reach the heart is touched on, as are various factors predisposing to infection. Adult males are most commonly affected. In conclusion, it is pointed out that most cases of mycotic endocarditis were diagnosed at first as sub-acute bacterial endocarditis; in such cases, fungi should always be looked for.

1088. Foster (J. B. T.), Almeda (E.), Littman (M. L.), & Wilson (M. E.). **Some intraocular and conjunctival effects of amphotericin B in Man and in the Rabbit.**—*Arch. Ophthalmol.*, **60**, 1, pp. 555–564, 8 fig., 1 col. pl., 1958.

At the Dept of Ophthalmology, St. Luke's Hospital, New York, amphotericin B, administered by the intraocular, subconjunctival, and conjunctival routes, eliminated fungal infection (*Volutella* sp.) of the anterior chamber of the eye in a 78-yr.-old woman, but infection damage was sufficient to cause blindness. In tests with rabbits *Volutella* infection was difficult to establish, and, once established, either regressed spontaneously or proceeded to panophthalmitis. The safe intraocular dosage for rabbits or human subjects is 20–35 μg., injected into the anterior chamber in a volume of 0·05 ml. every 10 days (total of 3 doses). For daily application to the conjunctiva and cornea the safe concentration is 5–10 mg./g. bacitracin ointment.

1089. Zapater (R. C.). **Recientes adquisiciones en micología médica.** [Recent advances in medical mycology.]—*Arch. argent. Pediat.*, **50**, 2, pp. 95–103, 1958.

A review of the American literature on the saprophytic phase of pathogenic fungi.

1090. Lutz (W.). **Mykosen.** [Mycoses.]—*Dermatologica, Basel*, **115**, 2, pp. 149–154, 1957.

A survey of recent contributions to the literature, mainly on dermatomycoses, with a few references to actino- and maduro-mycoses.

1091. Pardo-Castello (V.) & Trespalacios (F.). **Superficial and deep mycoses in Cuba : a report based on 1,174 cases.**—*Sth. med. J.*, **52**, 1, pp. 7–15, 6 fig., 1959. [40 ref.]

Of 249 cases of tinea capitis examined at the University Hospital, Havana, 182 were caused by *M*[*icrosporum*] *canis*, 56 by *T*[*richophyton*] *tonsurans*, 3 by *T. mentagrophytes*, 5 by *M. gypseum*, and 3 by a combination of *T. tonsurans* and *M. canis*. Kerions developed in 13 cases of infection by *M. canis* and 2 each by *T. mentagrophytes*, *M. gypseum*, and *T. tonsurans*. The patients' age range was 9–15 yr. with 3 exceptions (1 infant, 2 adults). The group comprised 168 males and 81 females, 199 white and 50 coloured, 176 resident in the city and 73 from rural districts.

T. rubrum was the agent in 219 of the 227 cases of tinea cruris, *T. mentagrophytes* in 3, *T. tonsurans* and *M. gypseum* in 2 each, and *E*[*pidermophyton*] *floccosum* in 1. Males numbered 141 and females 86. Most of the patients were aged 21–60 and only 3 were children.

M. canis was isolated in 2 cases (both children) of tinea of the eyebrows.

Of 144 cases of onychomycosis, 137 were referred to *T. rubrum* and 7 to *C*[*andida*] *albicans*; many of the patients were simultaneously affected by tinea cruris and tinea pedis. The group comprised 67 men and 77 women, nearly all in the 20–60 age group.

T. rubrum was responsible for 73 of the 206 cases of tinea pedis, *T. m.* var. *interdigitale* [*T. interdigitale*] for 65, *E. floccosum* for 60, and *C. albicans* for 8. The condition affected 4 children under 9 yr. and 19 of the patients were aged 60–80, while nearly 90% were in the 20–60 group. The great majority of the 112 males and 94 females were resident in the city.

The glabrous skin was involved in 78 cases, over half of them children under 9 and only 12 adults, 8 persons suffering coincidently from tinea capitis. Infection was due to *M. canis* in 46 cases, *T. mentagrophytes* in 15, *M. gypseum* in 7, *T. rubrum* in 5, *T. tonsurans* in 3, and *E. floccosum* in 2.

Sycosis of the beard was attributed predominantly to *T. mentagrophytes* (32 of 41 cases), the other agents being *T. rubrum* (8) and *M. gypseum* (1). The group included 33 farmers (all white).

The genital region was the most common site of attack by *C. albicans*, being affected in 47 cases of 64. Other locations were the mouth and lips (9) and the submammary folds and axillae (1), while 1 patient succumbed to systemic invasion with abdominal fistula.

C[*ladosporium*] *werneckii* was recovered from all the 8 cases of tinea nigra palmaris [**3**, No. 516], which were invariably preceded by a fall or injury against the pavement or ground.

Hormodendrum [*Phialophora*] *pedrosoi* was responsible for 70 of 71 cases of chromoblastomycosis, the other being caused by *C. carrionii*. One 10-yr.-old child was affected. All the patients (69 were men) were occupied in some way with wood.

All the 10 cases of sporotrichosis (*S*[*porotrichum*] *schenckii*) (9 males, 15–75 yr.), originated in rural areas, 8 giving a definite history of injury from plants.

A[*ctinomyces*] *bovis* [*A. israeli*] was isolated from 2 of 7 cases of actinomycosis (5 cervico-facial, 2 pleuro-pulmonary).

N[*ocardia*] *brasiliensis* was isolated from 3 of 6 cases of mycetoma of the feet, all in men aged 21–50, *N. pelletieri* from 2, and *A*[*llescheria*] *boydii* from 1 [cf. **3**, Nos. 520, 523, *et passim*].

Histoplasmosis [*Histoplasma capsulatum*] has been reported twice, and cryptococcosis [*Cryptococcus neoformans*] and rhinosporidiosis [*Rhinosporidium seeberi*] once each.

1092. Morenz (J.). **Ein Desoxycholatmedium zur Isolierung pathogener Pilze.** [A desoxycholate medium for the isolation of pathogenic fungi.]—*Z. ges. Hyg.*, **5**, 2, pp. 102–106, 1959.

This medium described from the Hygiene-Institut der Medizinischen Akademie Magdeburg, is in effect Littmann's ox gall medium [**1**, No. 847] with the ox gall replaced by sodium desoxycholate at 50 mg. %. For the suppression of Gram+ bacteria a supplement of penicillin is preferred to crystal violet.

1093. Torack (R. M.). **Fungus infections associated with antibiotic and steroid therapy.**—*Amer. J. Med.*, **22**, 6, pp. 872–882, 6 fig., 1957. [43 ref.]

From the Montefiore Hospital, New York, are described 13 cases in which fungal infection (*Monilia* [*Candida*] 10; *Mucor* 3) was associated with antibiotic or steroid therapy. A distinction is drawn between surface proliferation of fungi and invasiveness into tissues: the former occurs with antibiotics used alone, the latter with combined antibiotic and steroid therapy. In only 1 of the cases reported was there clinical suspicion of infection before death. The author concludes with a brief review of relevant published experimental data.

1094. Newcomer (V. D.), Sternberg (T. H.), Wright (E. T.), & Reisner (R. M.). **Current status of amphotericin B in the treatment of the systemic fungus infections.**—*J. chron. Dis.*, **9**, 4, pp. 353–374, 1959. [34 ref.]

In addition to a review of the literature a tabulated survey is presented of the results of treatment of 22 patients at the Veterans Administration Center, General Medical and Surgical Hospital, Los Angeles, California, with courses of amphotericin B at dosages of 0·7–1·4 mg./kg. daily for 2 weeks–4 months, followed by 5 months–2 yr. observation. Of 5 cases of meningitis caused by *Coccidioides immitis*, 2 were improved, and of 9 in which the bones, skin, or lungs were involved 6 reacted favourably. Improvements were further recorded in 3 of 5 cases of meningitis due to *Cryptococcus neoformans*, 1 of 2 of pulmonary aspergillosis, 1 of *Candida parakrusei* infection of the eye, and 1 of N. American blastomycosis (*Blastomyces dermatitidis*).

1095. Utz (J. P.), Treger (A.), McCullough (N. B.), & Emmons (C. W.). **Amphotericin B: intravenous use in 21 patients with systemic fungal diseases.**—*Antibiot. Ann., 1958–9*, pp. 628–634, 1959.

At the National Institutes of Health, Bethesda, Maryland, the intravenous amphotericin B treatment of patients with cryptococcal meningitis [*Cryptococcus neoformans*] (6), coccidioidomycosis [*Coccidioides immitis*] (3), candidiasis (*Candida albicans*) (4), histoplasmosis [*Histoplasma capsulatum*] (4), and blastomycosis [*Blastomyces dermatitidis*] (4) was effective in the last 2. Some patients with cryptococcosis showed improvement, and 1 has apparently recovered after treatment; slight improvement following treatment was noted in 1 coccidioidomycosis case, but none of the 3 showed changes in cultural status. So far only 1 of the 4 candidiasis cases has shown improvement. Toxic effects were seen to some degree in all patients, but they disappeared after therapy was discontinued.

1096. Sorensen (L. J.), McNall (E. G.), & Sternberg (T. H.). **The development of strains of Candida albicans and Coccidioides immitis, which are resistant to amphotericin B.**—*Antibiot. Ann., 1958–9*, pp. 920–923, 1959.

For the first time, lines of *Candida albicans* resistant to amphotericin B have been produced at the Dept of Medicine, Division of Dermatology, University of California School of Medicine, Los Angeles; also 2 resistant strains of *Coccidioides immitis* were obtained. These amphotericin B resistant strains were also resistant to nystatin, but not pimaricin. Special attention is drawn to these findings since both amphotericin B and nystatin are used for therapy of moniliasis.

1097. Roth Jr. (F. J.), Boyd (Carolyn C.), Sagami (S.), & Blank (S.). **An evaluation of the fungistatic activity of serum.**—*J. invest. Derm.*, **32**, 5, pp. 549–556, 1 graph, 1959.

At the Division of Dermatology, University of Miami School of Medicine, Florida, fungal 'pellets', obtained by growing freshly isolated strains of *Trichophyton mentagrophytes* and *T. rubrum* in shake culture, were exposed to dilute serum *in vitro* and the rate of growth determined by measurements of the diam. of the 'pellet'. Growth of *Candida albicans* was followed turbidimetrically. Of the 156 serum samples examined, the great majority exhibited considerable fungistatic activity against the dermatophytes *in vitro*. This inhibitory capacity was demonstrable in the blood of infants from birth at a level roughly equivalent to that in the maternal blood. It was reduced significantly by dialysis, and to a much lesser degree by heat (56° C.). The action on dermatophytes is strictly fungistatic and does not persist for more than 96–120 hr.

The serum of normal adults was highly inhibitory to *C. albicans*. However, the inhibitory capacity of samples from the umbilical cord was much lower, and in infants a significant level was not reached until the 3rd month. The activity of the serum against this fungus was not reduced to any great degree by heat or short periods of incubation with living or dead cells of the yeast.

1098. Lehan (P. H.), Yates (J. L.), Brasher (C. A.), Larsh (H. W.), & Furcolow (M. L.). **Experiences with the therapy of 60 cases of deep mycotic infections.**—*Dis. Chest*, **32**, 6, pp. 597–614, 12 fig., 2 graphs, 1957. [Spanish, French and German summaries. 30 ref.]

This paper from the Missouri State Sanatorium, Mount Vernon, comprises a review of work on the therapy of deep mycotic infections, together with the results of a screening trial over several years (60 patients), in which several antifungal agents were tested *in vivo* and *in vitro*. Clinical trials involving 38 patients with cryptococcal meningitis (*Cryptococcus neoformans*) or progressive histoplasmosis (*Histoplasma capsulatum*), treated with 2-hydroxystilbamidine, aminostilbamidine, MRD 12, mycostatin, or amoebacide were disappointing. Among patients with the same diseases treated with amphotericin B, however, preliminary results were dramatic. Studies are under way to find a means of improving absorption of oral preparations from the gastrointestinal tract. 'Adequate' blood levels are easily obtainable with intravenous preparations.

1099. Hill (G. A.). **Host resistance in systemic mycotic infections.**—*Diss. Abstr.*, **19**, 10, p. 2432, 1959.

At the University of Utah the virulence of strains of *H[istoplasma] capsulatum*, *B[lastomyces] dermatitidis*, *C[andida] albicans*, and *C[ryptococcus] neoformans*, estimated by LD_{50} determinations on antibiotic-containing blood agar cultures maintained at 37° C., was found not to change significantly over the period of study. There were, however, significant differences in virulence between different strains of the same organism. Mice were reproducibly infected with *H. capsulatum*, but monkeys (*Macaca* spp.) were highly resistant.

Mice immunized by injection with killed whole yeast-phase cells or protein polysaccharide fractions of *H. capsulatum* showed significantly higher resistance to intravenous challenge than did non-immunized animals: a significant increase in resistance was also engendered by chronic sub-lethal infection. Slight but significant increases in survival occurred in mice challenged with *B. dermatitidis* after injection with a less virulent strain.

The cellular defence mechanisms in murine histoplasmosis were studied by *in vivo* and *in vitro* experiments using cell-culture techniques and isotope-labelled yeast-phase cells: the results suggest that 'immunized' macrophages are able to limit the

growth of the fungus *in vitro* significantly longer, and to destroy the parasite more rapidly, than 'normal' phagocytes. The mechanisms in question seem to be related to increased intracellular digestive capacity rather than to a system dependent on antibody. Only congeners of stilbamidine, and the antibiotic eulicin, were effective against murine blastomycosis.

1100. Knight (R. A.). **The chemical, serologic and skin test activities of polysaccharides extracted from Histoplasma capsulatum and Blastomyces dermatitidis.**—*Diss. Abstr.*, **19**, 8, pp. 1896–1897, 1959.

At the University of Utah the yields obtained by chemical extraction of polysaccharides from 3 strains each of *H. capsulatum* and *B. dermatitidis* were higher from culture filtrates than from yeast-phase cells. Tests suggested that the polysaccharides from both fungi consist of glucose units with an occasional glucoseamine moiety. In the Oudin and Ouchterlony agar precipitation tests the polysaccharides from the 2 fungi reacted only with their respective homologous antibodies, and each produced a single band of precipitate. The polysaccharide antigen of *H. capsulatum* could be used as an antigen in the complement-fixation test using hyperimmune guinea-pig or rabbit serum. Haemagglutination test results were not reproducible. When polysaccharides from the 2 fungi were used as antigens in skin tests on infected guinea-pigs the reactions obtained were as good as those with standard histoplasmin or blastomycin: these reactions were specific and there was no significant cross reactivity. On 136 human volunteers, 20 positive reactions were obtained with the polysaccharide antigens: reactions to the *H. capsulatum* antigen were equal to those of histoplasmin, but specific *B. dermatitidis* skin-test reactions were not observed. A few persons reacting strongly to *H. capsulatum* skin-test materials gave minor reactions to polysaccharide from *B. dermatitidis*.

1101. Segal (E. L.), Starr (G. F.), & Weed (L. A.). **Study of surgically excised pulmonary granulomas.**—*J. Amer. med. Ass.*, **170**, 5, pp. 515–522, 5 fig., 1 map, 1959.

Of 138 specimens examined over a 2½-yr. period at the Mayo Clinic, Rochester, Minnesota, by Gomori's methenamine-silver nitrate technique, 55·9% contained 'structures' resembling *Histoplasma capsulatum* or *Coccidioides immitis*, but attempts at culture failed.

1102. Kunz (C.). **Lungenmykosen und ihre Laboratoriumsdiagnostik.** [Pulmonary mycoses and their laboratory diagnosis.]—*Wien. med. Wschr.*, **109**, 10, pp. 207–209, 1959. [15 ref.]

A survey of up-to-date information on some well-known diseases and their recognition mainly by sputum culture, bronchoscopy, and serological methods.

1103. Zimmermann (L. E.). **Some contributions of the histopathological method to the study of fungus diseases.**—*Trans. N.Y. Acad. Sci.*, Ser. II, **19**, 4, pp. 358–371, 1957. [54 ref.]

Advances made during the past decade through the extensive application of highly sensitive special staining techniques are reviewed and discussed. They include the ramifications of improved etiological diagnosis; the revision of several old concepts now known to be inaccurate; and the acquisition of epidemiological and endemiological data.

1104. Seides (H. W.), Buies (L. R.), & Malawista (S. E.). **Histoplasmin, tuberculin and coccidioidin sensitivity in Liberian aborigines.**—*Amer. J. trop. Med. Hyg.*, **8**, 1, pp. 37–40, 1959. [17 ref.]

Of 712 male Liberian rubber-tappers and 66 children tested for histoplasmin sen-

sitivity, 129 (18·1%) of the former and 2 (3%) of the latter group reacted positively. The distribution of reactivity among 16 tribes is tabulated. There was no significant cross-sensitivity between histoplasmin and tuberculin, the latter evoking 74·7 and 38·3% positive reactions among workers and children, respectively. Of 717 adults and 16 children tested with coccidioidin, 9 (1·2%) of the former developed transient reactions while the responses of the latter were entirely negative.

1105. Vieu (M.) & Segretain (G.). **Contribution à l'étude de Geotrichum et Trichosporon d'origine humaine.** [Contribution to the study of *Geotrichum* and *Trichosporon* of human origin.]—*Ann. Inst. Pasteur*, **96**, 4, pp. 421–433, 1 pl., 1 fig., 1959. [18 ref.]

The study, at the Institut Pasteur, Paris, of strains of *Geotrichum* and *Trichosporon*, both freshly isolated from human sources and obtained from culture collections, shows that the fungi can be distinguished by their morphology on potato agar and by their physiology. *Geotrichum* forms arthrospores only, assimilates only glucose and galactose, and does not split arbutin, while *Trichosporon* forms arthrospores and blastospores, assimilates almost all sugars, and splits arbutin. *Geotrichum* was always isolated from mucous membranes or sputum, *Trichosporon* from the skin. The pathogenicity of both fungi, but especially of *Trichosporon*, is questionable.

1106. Saëz (H.). **Recherche du Candida albicans et du Geotrichum candidum dans les fèces de quelques animaux sauvages en captivité.** [The search for *C. albicans* and *G. candidum* in the faeces of some wild animals in captivity.]—*Bull. mens. Soc. linn. Lyon*, **28**, 6, pp. 191–194, 1 fig., 1959. [17 ref.]

In examinations of fresh faeces from wild animals at the Zoological Gardens, Vincennes, 32 samples were taken from 2 ant-eaters, and *C. albicans* was isolated on 6 occasions, *G. candidum* on 27. From 22 samples from 2 okapis *G. candidum* was isolated 16 times; and 7 times from 25 samples from 2 giraffes, and from 20 samples from 7 deer 8 times. There were 28 samples from 6 penguins, from which *C. albicans* was isolated once and *G. candidum* twice.

1107. Labie (C.). **Les lésions d'origine mycosique chez les animaux et leurs aspects nouveaux.** [Lesions of mycotic origin in animals and their new aspects.]—*Rec. Méd. vét.*, **133**, pp. 625–646, 1957. [*V.B.*, **28**, 6, 1729.]

After briefly noting a possible relationship between mycotic diseases in animals and the addition of antibiotics to their food, the author discusses in the light of the literature (mainly of the past 10 yr.) [3 pp. ref.] the anatomical and pathological aspects of actinomycosis, aspergillosis, blastomycosis, moniliasis, coccidioidomycosis, histoplasmosis, and mucormycosis.

1108. King (Sylvia) & Meyer (Esther). **Metabolic and serologic differentiation of Actinomyces bovis and anaerobic diphtheroids.**—*J. Bact.*, **74**, 2, pp. 234–238, 1957.

From studies at the University of Illinois, Chicago, it was concluded that 'anaerobic diphtheroids' are more closely related to *Corynebacterium* (which is catalase +) than to *Actinomyces* (catalase —).

While human and bovine strains of *A. bovis* showed only minor carbohydrate fermentation differences there was no cross-agglutination between isolates from the two sources.

1109. Brede (H. D.). **Zur Ätiologie und Mikrobiologie der Aktinomykose. I. In-vitro-Versuche zur Frage der fermentativen Unterstützung des Actinomyces israeli durch Begleitbakterien.** [On the etiology and microbiology of actinomycosis. I. *In vitro* experiments on the question of the fermentative support

of *A. israelii* by concomitant bacteria.] Heinrich (S.) & Pulverer (G.). **II. Definition und praktische Diagnostik des Actinobacillus actinomycetemcomitans.** [II. Definition and practical diagnosis of *A. actinomycetem-comitans.*]—*Zbl. Bakt.*, Abt. 1 (*Orig.*), **174**, 1–2, pp. 110–122; pp. 123–132, 2 pl., 1959. [English, French, Spanish, and Russian summaries.]

At the Hygienisches Institut, University of Cologne, presupposing the certainty of an etiological function in the mixed bacterial flora accompanying *A. israelii* in cases of human actinomycosis, the author investigated the production of depolymeridases by the fungus on the one hand and its symbionts on the other, using viscosimetric and decapsulation tests, with the following results. No depolymerizing enzymes were detected in the culture filtrates of 88 strains of *A. israeli*. However, all the 21 strains of *Staphylococcus aureus* isolated from patients contained hyaluronidase, which acts as a diffusion factor by depolymerization. The same enzyme was also secreted by 3 of 8 strains of anaerobic *Streptococcus*, while depolymeridases distinct from hyaluronidase occurred in 22 of 25 filtrates of *Actinobacillus actinomycetem-comitans* [**2**, No. 10] and in all the 21 of *Bact*[*eroides*] *melaninogenicus* isolated.

In Part 2, the inadequate published descriptions of the above-mentioned frequent symbiont are amplified by a full description of its morphological and cultural characters on solid and liquid media. The results of a biochemical and serological study of 12 strains isolated from cases of actinomycosis demonstrated their uniformity in these respects.

1110. a. Rangel (A. L.) & Ferreira (A.). **Actinomicose primitiva das amigdalas.** [Primary actinomycosis of the tonsils.]—*Rev. méd. Aero.* (*Rio de J.*), **9**, 1–2, pp. 34–36, 1957.

b. Pulaski (E. J.) & Talley (T. P.). **Cervical actinomycosis in a three year child.**—*Antibiot. Med.*, **4**, 11, pp. 755–758, 3 fig., 1957.

c. Hunter (G. C.) & Westrick (C. M.). **Cervicofacial abscess by actinomycosis ; report of a case.**—*Oral Surg.*, **10**, 8, pp. 793–800, 1957.

d. Huber (P.). **Zerviko-faziale Aktinomykose.** [Cervico-facial actinomycosis.]—*Ther. Umsch.*, **14**, 10, p. 292, 1957.

e. Hertz (J.). **Actinomycosis : oral, facial, and maxillary manifestations.**—*J. int. Coll. Surg.*, **28**, 5, pp. 539–556, 1957.

f. Herberts (G.) & Sandström (J.). **Cervicofacial actinomycosis ; report of a case.**—*Acta oto-laryng.* (*Stockh.*), **48**, 5–6, pp. 458–464, 1957.

g. Carlier (G.) & Goudaert (M.). **Que faut-il penser de l'actinomycose cervico-faciale.** [What should one think of cervico-facial actinomycosis?]—*Sem. Hôp. Paris*, **33**, 34, pp. 2187–2188, 1957.

h. Buraczewski (J.). **Guzowate postacie promienicy kostnej zuchwy u dzieci.** [Tumour types of osseous actinomycosis of the mandible in children.]—*Pediat. pol.*, **32**, 2, pp. 151–157, 1957.

i. Brückel (K. W.). **Zur Aktinomykose-Behandlung.** [The treatment of actinomycosis.]—*Dtsch. med. Wschr.*, **83**, 36, pp. 1549–1551, 1558, 1588–1589, 1 pl. (2 fig.), 1958. [14 ref.]

j. Brucher (J. M.), Dereymaeker (A.), & Van de Voorde (H.). **Trois cas d'abcès cérébraux actinomycotiques.** [Three cases of actinomycotic cerebral abscess.]—*Acta neurol. belg.*, **58**, 5, pp. 372–388, 1958.

k. Kusunoki (T.), Hayashi (I.), & Kashiwai (K.). **Actinomycosis of the ovary perforating into the urinary bladder : report of a case.**—*Urol. int. Basel*, **6**, 4–6, pp. 251–258, 1958.

l. Browning (R. W.). **Actinomycosis in pregnancy ; with a case report.**—*Mississippi Doct.*, **35**, 10, pp. 245–246, 1958.

m. Bogatko (F. L.). **Actinomycosis of cervix.**—*J. Amer. med. Wom. Ass.*, **13**, 7, p. 268, 1958.

n. Stevenson (A. E.). **Actinomycosis of ovaries and fallopian tubes : report of a case.**—*J. Obstet. Gynaec. Brit. Emp.*, **64**, 3, pp. 365–369, 1957.

o. Nemes (J.). **Ivarszervi aktinomykosis műtéttel gyógyított esete.** [Surgical cure in actinomycosis of the genital organs.]—*Orv. Hetil.*, **98**, 31, pp. 855–856, 1957.

p. Noodt (H.). **Zur Klinik der abdominellen Aktinomykose.** [Clinical aspects of abdominal actinomycosis.]—*Bruns' Beitr. klin. Chir.*, **196**, 4, pp. 445–453, 1958.

q. Machaffie (R. A.), Zaayer (R. L.), Saichek (H.), & Sciortino (A. L.). **An unusual case of actinomycosis manifested as an abdominal wall abscess.**—*Gastroenterology*, **33**, 5, pp. 830–836, 1957.

r. Bogetti (H.), Antonelli (N.), & Lascano Gonzalez (J. C.). **Actinomicosis abdominal.** [Abdominal actinomycosis.]—*Bol. Soc. Cir. B. Aires*, **41**, 11, pp. 335–344, 1957.

s. Trempe (F.). **Actinomycose mammaire primitive.** [Primary actinomycosis of the breast.]—*Canad. J. Surg.*, **1**, 3, pp. 210–211, 1958.

t. Luria (E.) & Gueron (M.). **Actinomycosis of the breast in a male.**—*Harefuah*, **54**, 4, p. 94, 1958. [In Hebrew.]

u. Callens (L.). **Een geval van thoracale actinomycose.** [A case of thoracic actinomycosis.]—*Belg. T. Geneesk.*, **13**. 26, pp. 1323–1325, 1957.

v. Forster (E.), Moeller (R.), & Muller (J.). **Un nouveau cas d'actinomycose thoracopulmonaire traité chirurgicalement.** [A case of thoracopulmonary actinomycosis treated surgically.]—*J. franç. Méd. Chir. thor.*, **11**, 3, pp. 317–324, 1957.

w. Riederer (J.). **Zur Diagnose und Behandlung der pleuropulmonalen Aktinomykose.** [Diagnosis and treatment of pleuropulmonary actinomycosis.]—*Ärztl. Wschr.*, **13**, 8, pp. 181–183, 1958.

x. Choukas (N. C.). **Actinomycosis of the mandible.**—*Oral Surg.*, **11**, 1, pp. 14–19, 1958.

y. Uhlig (H.). **Zur Differentialdiagnostik der Aktinomykose des Kiefers.** [Differential diagnosis of mandibular actinomycosis.]—*Arch. Kinderheilk.*, **155**, 1, pp. 72–77, 1957.

z. Stropnik (Z.). **Actinomyces israeli — izolacija iz sputuma.** [*Actinomyces israelii*—isolation from sputum.]—*Zdrav. Vestn.*, **26**, 11, pp. 472–476, 4 fig., 1957. [English summary. 34 ref.]

1111. Beckmeyer (W. J.). **Nocardiosis. Report of a successfully treated case of cutaneous granuloma.**—*Pediatrics, Springfield*, **23**, 1, Part I, pp. 33–39, 1 fig., 1959.

Nocardia asteroides was the agent in this unusual case (only the 12th on record in children [cf. **2**, No. 2262]), involving the left cheek and associated with purulent local lymphadenitis in a 3-yr.-old boy. It was effectively treated at Valley Forge Army Hospital, Pennsylvania, by a 38-day course of oral therapy with Na sulphadiazine and Na citrate, the former at 0·5 and the latter at 0·8 g. at 6-hr. intervals, supplemented by topical applications of 5% Na sulphathiazole.

1112. Zaharija (I.), Zelenka (P.), & Brudnjak (Z.). **Nokardiose des Hundes in Kroatien festgestellt (im Jahre 1956).** [Nocardiosis of the Dog diagnosed in Croatia (in 1956).]—*Vet. Arhiv*, **28**, 5–6, pp. 133–141, 1958. [Abs. in *Bull. sci., Conseil Acad. Yougoslavie*, **4**, 4, p. 126, 1959.]

Nocardia asteroides was isolated from lymph nodes in the mediastinum of a dog with symptoms of 'distemper-hard pad' in 1956 (1st record), and from another dog in 1957, from an abscess at the point of bifurcation of the bronchi.

1113. Awad (F. I.). **The inter-relationship between tuberculosis and bovine farcy.**—*J. comp. Path.*, **68**, 3, pp. 324–330, 1958. [*V.B.*, 28, p. 701.]

Evidence was obtained at the Veterinary Research Division, Dept of Animal Production, Khartoum, from experiments with calves and guinea-pigs that *Actinomyces farcinicus* [*Nocardia farcinica*] may sensitize animals to avian or mammalian tuberculin or both and thus confuse the interpretation of tuberculin tests.

Guinea-pig inoculation is advocated as the best method for distinguishing tuberculosis from farcy in cattle.

1114. Peterkin (G. A. G.). **The changing pattern of dermatology.**—*Arch. Derm., Chicago*, **80**, 1, pp. 1–14, 9 graphs, 1959.

In this address to the American Academy of Dermatology and Syphilology the author, of the Skin Dept, Royal Infirmary, Edinburgh, observed that, despite the introduction of new fungicides, fungus infections are far from being conquered, and their annual incidence in Edinburgh for 1932–57 is summarized graphically. In Scotland animal ringworm is not uncommon in man and is usually due to *Trichophyton mentagrophytes*. An increasing number of cases of *T. rubrum*, affecting not only the feet but also other areas, are being seen. Oral antibiotic therapy is producing more cases of pruritus ani (*Candida albicans*), for which local application of ultra cortenol with bradosol cream is recommended.

1115. Pinetti (P.). **Distribuzione e diffusione di Trichophyton violaceum (Bodin) nelle diverse parti del mondo.** [The distribution and spread of *T. violaceum* in the different parts of the world.]—*Rass. med. saida*, **61** (N.S. **10**), 3, pp. 293–322, 8 maps, 1959. [English summary.]

A detailed study based on hundreds of bibliographical references is presented of the distribution and frequency of *T. violaceum* throughout the world. Variations in frequency and distribution which have occurred during the past 50 yr. are also considered. The data for 1896–1957, covering the different vars. of *T. violaceum* (such as *T. glabrum*), which in the older literature are sometimes treated as separate species, are summarized in tables applying to 51 different countries. Other tables, arranged according to continents, give the distribution and spread, i.e. the max., min., and av. figures for (*a*) before 1930 and (*b*) 1931–1958, the corresponding increase or reduction, and the present prevalence, for each country separately.

T. violaceum is frequently found throughout Italy, especially in the southern central part and in Sardinia. It has increased in prevalence in France and Belgium in recent years and, since 1935, in central Spain and in Madrid. Throughout Germany and Austria incidence reaches only 1–3% of cases of dermatomycosis, seldom 4–6%. In the British Isles the fungus is rare, as it is in Scandinavia and Finland. In N. Africa, frequency is high, whereas in S. Africa and the Belgian Congo it is only moderate. The fungus is rare almost everywhere in N. and S. America. On the whole, it is common in Japan.

1116. a. Huriez (C.), Biguet (J.), Cochet (G.), Mullet (S.), & Doby-Dubois (M.). **Epidémiologie des teignes infantiles dans le nord de la France depuis**

1946 ; Départements du Nord et du Pas-de-Calais. [Epidemiology of tinea infections in Children in northern France since 1946: Departments Nord and Pas-de-Calais.]—*Sem. Hôp. Paris*, **33**, 32, pp. 2046–2047, 1957.

b. Luna (C. de). **Flore dermatophytique actuelle de la région Parisienne ; ses incidences sur la prophylaxie et la traitement des teignes.** [The present dermatophytic flora in the Paris area; its effect on the prevention and treatment of tineas.]—*Sem. Hôp. Paris*, **33**, 36, pp. 2286–2290, 1957.

1117. Marples (Mary J.). **Some problems in the ecology of the dermatophytes.**—*N.Z. med. J.*, **58**, 323, pp. 64–69, 1959. [14 ref.]

This is a review, with particular reference to work at the University of Otago, Dunedin. In New Zealand *Microsporum canis* [cf. **3**, No. 26] is the predominant cause of scalp and body ringworm. It seems almost certain that *M. audouinii* infections are introduced from time to time by immigrants, but the infection does not spread, and as yet no epidemics have occurred: it may be that because overcrowding, whether at home or at school, is rare, contact between infected and uninfected children is not sufficiently prolonged for the fungus to establish itself. Infected kittens are the commonest source of *M. canis*. *M. distortum* [cf. **2**, No. 1678] occurs sporadically, and is isolated from children in Central Otago. *M. gypseum* infections are rare. At Dunedin *Trichophyton* spp. are the most frequent agents of tinea pedis: *T. mentagrophytes* is the sp. most commonly isolated, but in the North Island *T. rubrum* is becoming relatively common. *T. verrucosum* is the organism usually isolated from man infected from cattle.

1118. Kominami (M.). **A survey on keratinolytic or keratinophilic molds from soil in Japan. Report I. On Keratinomyces ajelloi isolated from soil in Japan.**—*Tohoku J. exp. Med.*, **66**, 3–4, pp. 233–237, 1957.

By means of Vanbreuseghem's method [**1**, No. 2544], 3 strains of *K. ajelloi* were isolated from soil in the stables of the Ueno Zoo, Tokyo. All attacked human hair as reported by Ajello [**2**, No. 600] but were non-pathogenic to guinea-pigs. On Sabouraud's dextrose agar the originally white colonies began to turn cinnamon-buff (Victoria lake on the reverse) on the 4th day, with pigmentation of the agar. The multicellular, fusiform macroconidia were 20–50×6–11 (av. 46×16)μ.

1119. Fegeler (F.). **Zum System der Dermatophyten.** [On the systematy of the dermatophytes.]—*Arch. klin. exp. Derm.*, **204**, 3, pp. 283–287, 1957.

The proposed system of classification is based on mycological characters, with special reference to the macroconidia. *Trichophyton* is divided into 3 subgenera, *Ctenomyces*, *Crateriforme*, and *Faviforme*.

Lists are given of the spp. assigned to each genus.

1120. Esteves (J.) & Neves (H.). **A griseofulvina no tratamento da tinha do coiro cabeludo e das outras localizações desta doença (Primeiras observações).** [Griseofulvin in the treatment of tinea of the scalp and other localizations of this disease (preliminary observations).]—*J. Méd., Pôrto*, **39**, 855, pp. 341–344, 1959.

At the Hospital de Curry Cabral, Lisbon, encouraging results were obtained in the treatment of tinea (*Trichophyton violaceum*, *T. tonsurans*, *T. megninii*, and *Microsporum canis*) in children and adults with griseofulvin. Favus (*T. schoenleinii*) in 4 children was apparently cured by a dosage of 1 g. daily for those over 2 yr., and 0·5 g. daily for the younger ones. This is stated to be the 1st recorded cure of favus by griseofulvin.

1121. Latapi (F.). **Griseofulvina. Un nuevo antimicótico por vía oral.** [Griseofulvin. A new antimycotic for oral treatment.]—*Sem. méd. Méj.*, **20**, 251, pp. 113–115, 1959.

An informative paper on griseofulvin [**3**, No. 513, 772–774].

1122. Tasei (L.), Retoret (S.), & Bailenger (J.). **Un nouveau fongicide : le laurylsulfonate de cuprammonium.** [A new fungicide: cuprammonium laurylsulphate.]—*Presse méd.*, **65**, 13, pp. 267–268, 1957.

Observations at l'Hôpital militaire régional Robert-Picqué, Bordeaux, France, show that fungus diseases of the skin in army personnel have increased from 3·7% of all dermatological cases in 1950 to 28·4% in 1956. A new fungicide, 'laurylcuivre' gel or powder (cuprammonium laurylsulphate) effected a quick clinical cure in 29 of 55 cases [causal fungi unspecified] hitherto resistant to treatment: 16 cases responded more slowly and 10 were not affected.

1123. Negroni (B.) & Briz de Negroni (C[elia]). **Acción fungistática selectiva del ácido undecilénico y del propionato de sodio sobre los dermatófitos.** [Selective fungistatic action of undecylenic acid and of sodium propionate on dermatophytes.]—*Rev. argent. Dermatosif.*, **42**, pp. 209–212, 1 fig., 1958. [English summary.]

At the Centro de Micologia, Facultad de Ciencias Medicas de Buenos Aires, Argentina, it was found that the dermatophytes most frequently encountered in adults, *viz. Epidermophyton floccosum*, *Trichophyton rubrum*, *T. interdigitale*, *T. mentagrophytes*, were more resistant *in vitro* to the above-mentioned antimycotics (e.g. only partially inhibited by 0·008% undecylenic acid) than were the species characteristic of infection in children, *viz. Microsporum canis*, *T. sabouraudii* (e.g. inhibited by 0·004%).

1124. Kral (F.). **Recent experiences with therapeutic agents in veterinary dermatology.**—*J. Amer. vet. med. Ass.*, **133**, 2, pp. 119–121, 1 fig., 1958.

It is reported from the School of Veterinary Medicine, University of Pennsylvania, Philadelphia, that 0·5% triocil (bis-1, 3-*beta*-ethylhexyl-5-methyl-5 amino hexahydropyrimidine) in an alcohol-acetone base was effective against ringworm in 11 dogs, 5 cats, and 2 horses caused by *Microsporum canis*, *M. gypseum*, and *Trichophyton mentagrophytes*. All recovered within 2–3 weeks.

1125. Ravina (A.), Pestel (M.), & Lapresle (J.). **Nécrose cérébrale après radiothérapie pour teigne.** [Cerebral necrosis after radiotherapy for ringworm.]—*Presse méd.*, **67**, 26, pp. 1063–1064, 1959.

This report, from the Hôpital Beaujon, Clichy, France, records the death from cerebral necrosis of a 6-yr.-old boy 9 weeks after X-ray epilation of his scalp. The brain lesions are described and appropriate warnings given.

1126. Sukhenko (F. T.) & Podgaĭnaya (Mme E. S.). Превращения мочевой кислоты некоторыми грибами. [The transformation of uric acid by some fungi.]—*Biokhimiya*, **23**, 2, pp. 185–193, 1958. [English summary. Abs. in *Referat. Zh. Biol., 1959*, 10, p. 130, 1959.]

Microsporum lanosum [*M. canis*] and *M. ferrugineum* were able to use uric acid as the sole source of N.

1127. Kammer (H.) & Knight (S. G.). **Studies on the infectivity of nutritional mutants of Trichophyton mentagrophytes.**—*J. invest. Derm.*, **32**, 6, pp. 621–622, 1959.

At the Dept of Bacteriology, University of Wisconsin, mutants of *T. mentagrophytes*

requiring one or other of a number of amino acids, B-vitamins, or purines and pyrimidines, were obtained by ultra-violet irradiation of cultures. All the mutants were infective for guinea-pigs, and it therefore seems that this host can provide the majority, if not all, of the necessary nutrients. It should, however, be borne in mind that the fungus exhibits considerable hydrolytic activity and can readily liberate amino acids from proteins.

1128. Merkel (M.). **Investigations of the chemical structures of the genus Achorion. I. Chemical structure of Achorion schoenleinii.**—*Bull. Acad. polon. Sci.*, Sér. Sci. biol., **6**, 10, pp. 417–422, 5 fig., 1958.

A fully tabulated account and discussion of results of studies at the School of Medicine, Warsaw, demonstrating that the cell wall of *A.* [*Trichophyton*] *schoenleinii* is composed of chitin.

1129. Zamiechowska-Miazgowa (J.). **Chemical and antigen structure of Trichophyton plicatile.**—*Bull. Acad. polon. Sci.*, Sér. Sci. biol., **6**, 10, pp. 423–428, 3 fig., 1958.

A detailed, tabulated analysis of the results of studies at the School of Medicine, Warsaw, of the 18 fractions into which *T. plicatile* was chemically separated.

1130. Zackheim (H. S.), Schroeder (L. J.), & Key (R.). **The effect of molybdenum and other trace elements on experimental fungus infections in Guinea Pigs.**—*J. invest. Derm.*, **32**, 6, pp. 623–625, 1 graph, 1959.

At the Dept of Dermatology, Wayne State University, Detroit, Michigan, high levels of Co, Cu, Cr, I, Fe, W, Zn, cysteine, and vitamin C were included in the diet of guinea-pigs to test the possibility that they might accumulate in the epidermis and hair and inhibit dermatophyte infection. In experimental infections with *Microsporum lanosum* [*M. canis*] and *Trichophyton mentagrophytes* there was no sign of such inhibition, except that 2 series of guinea-pigs receiving molybdenum showed a suggestion of resistance to 1 of 6 strains of *M. canis*.

1131. Partridge (Betty M.). **The use of the chorioallantoic membrane of the developing Chick for culture of dermatophytes—a modified technique.**—*J. invest. Derm.*, **32**, 6, pp. 605–619, 11 fig., 1959.

The improved technique described in this preliminary note from the Institute of Dermatology, London, is that described by Showalter [**2**, No. 1676] but with manipulation of the membrane reduced to a minimum (cf. R. E. Alexander, *Onderstepoort J. vet. Sci.*, **11**, 9, 1938). In studies of 3 strains of *Trichophyton rubrum* the mode of invasion and the overall pattern of tissue response were uniform, though the rate of infection varied. Serial transfer (6 passages) resulted in a slight increase in parasitic adaptation in 2 of the strains, accompanied by gradual conversion from downy to granular colonies and an increase in the production of macroconidia.

1132. Saëz (H.). **Culture de Sabouraudites canis sur poils de Cobaye en milieu gélosé.** [The culture of *Microsporum canis* on hairs of the Guinea-pig in an agar medium.]—*Ann. Derm. Syph., Paris*, **86**, 3, pp. 271–277, 6 fig., 1959.

White or pale guinea-pig hairs were taken from the stomach and sides, cut into pieces 3–5 mm. long, and placed in tubes measuring 160×16 mm. to a depth of 5 mm. After the addition of 5 ml. of water containing 20% agar the tubes were autoclaved, and upon removal were shaken slightly.

On this medium pleomorphism is retarded and colonies of *M. canis* retain the characters of the original cultures, especially the production of pigment and the development of numerous spindles.

1133. Fegeler (F.) & Knauer (I.). **Ein einfaches Verfahren zur Erleichterung des Pilznachweises bei Trichophytien der Unterschenkel.** [A simple procedure for the facilitation of mycological diagnosis in trichophytoses of the lower leg.] —*Hautarzt*, **8**, 7, pp. 326–327, 4 fig., 1957.

A strip of adhesive plaster should be applied to the suspected area for 6–8 days, during which time masses of fungi will accumulate in the pus or surrounding epithelium of the pustules formed under the covering. *T. faviforme* [*T. verrucosum*] is stated to be the principal agent of follicular trichophytosis in Westphalia, Germany.

1134. Koch (H.). **Erkrankungen durch Mikrosporon canis im Raum von Hamburg.** [Diseases caused by *Microsporum canis* in the Hamburg area.]—*Derm. Wschr.*, **136**, 28, pp. 741–746, 5 fig., 1957.

The rarity of *M. canis* in Germany, especially the Hamburg area, is discussed in the light of contemporary records and 6 recent cases are reported, together with some observations on infection by *M. audouinii* and on the cultural differentiation of the 2 spp.

1135. Brooks (Barbara E.), Alli (J. H.), & Campbell (Charlotte C.). **Isolation of Microsporum distortum from a human case.**—*J. invest. Derm.*, **33**, 1, pp. 23–26, 3 fig., 1958.

This case report of an infection of the skin of the left hand and thumb in a 24-yr.-old laboratory technician, treated at the Mycology Laboratory, Walter Reed Army Institute of Research, Washington, D.C., constitutes the 1st record of this infection in man in the United States [cf. **3**, No. 232].

1136. Hadida (E.) & Schousboe (A.). **Aspects de la maladie dermatophytique.** [Aspects of dermatophytic disease.]—*Algérie méd.*, **63**, 4, pp. 303–336, 1959.

This is a detailed report and discussion of 7 cases of systemic infection by dermatophytes seen at the Société Médicale des Hôpitaux d'Alger, some of which have been published before [**1**, No. 1481]. They include 3 fatal cases of *Achorion* [*Trichophyton*] *schoenleinii* infection in Algerian children under 17 yr. old, in which gross deformation of the face and hands occurred and the fungus was found in lesions of the muscle, viscera, and bones, as well as the skin. The remaining cases were *T. verrucosum* infections in 2 children and 2 men, also Algerians, which were becoming progressively worse but had not proved fatal at the time of writing. The cases are compared with others in the literature. Cortisone therapy aggravated the condition: griseofulvin was not available.

1137. Grin (E. I.), Zec (N.), & Štern (P.). **Trihofitija kapilicija odraslih i hormonalna disfuncija oboljelih.** [Trichophyton infection of the scalp in adults and hormonal dysfunction.]—*Rad. Nauč. Društ. Bosne Hercegovine*, **9**, 5, pp. 5–14, 3 pl., 2 graphs, 1958. [English summary.]

Systematic examination of the population in Bosnia, Yugoslavia, by the Venerological Clinic, Sarajevo Medical University, showed that ringworm caused by *T. violaceum* occurs in adults, mainly females, as well as children. Incidence in males tends to decline sharply after the age of 16. In an endemic area where 10,534 people were examined 795 (7·55%) had severe ringworm of the scalp. In females of 26–75 yr. incidence varied from approx. 4 to 8%, compared with 0 to less than 1% for similar age groups of men. The majority of the adult patients were of retarded somatic development with infantile features and characteristic peculiarities of protracted puberty and it is supposed that adreno-cortical function of androgen-oestrogen balance is disturbed.

1138. English (Mary P.) & Gibson (Mary D.). **Studies in the epidemiology of tinea pedis. I. Tinea pedis in school children. II. Dermatophytes on the floors of swimming baths.**—*Brit. med. J.*, **1**, 5135, pp. 1442–1446, 2 graphs [14 ref.]; pp. 1446–1448, 1959.

Examination of 1,839 boys and 2,061 girls from 12 secondary modern schools and 894 boys aged 7–10 yr. from 4 junior schools in 3 districts of Bristol is reported from the Bristol Royal Hospital: 40·3% of senior boys, 30·4% of senior girls, and 33·2% of junior boys had lesions and of these 6·6%, 1·6%, and 2·2%, respectively, had tinea pedis.

In girls the incidence was too low to be correlated with environmental factors. In boys the incidence increased gradually to age 11 and then fluctuated irregularly. No correlation was found between infection rate and cleanliness, the presence of non-mycotic lesions, social class, or the use of school showers.

Correlation was marked between infection and the district in which the schools were situated. Senior and junior boys' school in 1 district had 8·9% and 3·1% infection, respectively; similar schools in 2 other districts together had 5·5% and 0·4% infection, respectively.

It is concluded the local swimming-baths and the frequency with which they are used are the probable causes of this.

Of the 179 infections 84·4% were caused by *Trichophyton mentagrophytes*, 7·2% by *T. rubrum*, and 3·9% by *Epidermophyton floccosum*; 4·4% were identified by microscopical examination only. *T. mentagrophytes* was by far the most common isolate in all the schools. *T. rubrum* occurred in most schools at all ages in both sexes. *E. floccosum* was found only in senior boys' schools where its incidence equalled that of *T. rubrum*. In the 11–14 age group the proportion of boys to girls infected with *T. mentagrophytes* was 4:1, for *T. rubrum* 2:1.

The 2nd paper gives the results of an investigation of the dermatophytes on the floors of swimming-baths, using Gentle's technique [**2**, No. 2197]. *T. mentagrophytes* was found repeatedly but *T. rubrum* and *E. floccosum* were never found. The fungus was found more frequently in baths and parts of baths used by populations with a high incidence of tinea pedis than in those used by populations with a low incidence.

Frequent sluicing and brushing down seem to be reasonably effective ways of removing infective particles.

Of the swimming-bath staffs those who never swam (11) were not infected. Of those who entered the water, 8 of 14 had tinea pedis.

1139. Peterkin (G. A. G.). **The diagnosis and treatment of tinea pedis.**—*Practitioner*, **180**, 1079, pp. 543–552, 11 fig., 1958.

A useful illustrated review under the headings classification, differential diagnosis, treatment, prophylaxis, local therapy, and conclusions.

1140. Desai (S. C.) & Marquis (L.). **Clinico-mycological study of ringworm.**—*J. J. J. Group Hosp.*, **4**, 2, pp. 69–72, 6 fig., 1959.

It is stated that from experience at the K. E. M. Hospital, Parel, Bombay, the principal agents of tinea capitis and tinea corporis are *Trichophyton violaceum* and *T. rubrum*, respectively.

1141. Beurey (J.), Franquet (R.), Mougeolle (J.), Simonal, & Cherrier (P.). **Un cas de Tokelau.** [A case of Tokelau ringworm.]—*Bull. Soc. franç. Derm. Syph.*, **64**, 1, pp. 77–78, 1957.

In a French soldier who contracted *Trichophyton concentricum* infection in Indo-China.

1142. Esteves (J.) & Neves (H.). **Foliculites supuradas da barba provocadas por fungos ('kerion' da barba).** [Suppurating folliculitis of the beard caused by fungi ('kerion' of the beard).]—*J. Méd., Pôrto*, **38**, 846, pp. 785–793, 9 fig., 1959.

From the Hospital de Curry Cabral, Lisbon, Portugal, the authors describe 2 cases of kerion barbae (*Trichophyton mentagrophytes*) presumed to be of animal origin. Inoculation of the fungus onto the glabrous skin of the patients and 7 volunteers led to the formation of typical ringworm lesions in every instance. The authors do not accept the distinction between anthropophilic and zoophilic spp. of dermatophytes, but believe that the pathogenicity of these fungi may be influenced by the previous host. They consider that man is much more susceptible to natural or experimental infection with *T. mentagrophytes* than to other spp., and conclude from their data that previous inflammatory dermatomycosis does not prevent or modify future infection by the same fungus.

1143. Koch (H.). **Kasuistische Mitteilung zur Epidemiologie von Trichophyton rubrum-Erkrankungen.** [A case report on the epidemiology of *T. rubrum* diseases.]—*Hautarzt*, **8**, 8, pp. 366–368, 3 fig., 1957.

A male student working in the allergy laboratory of the Universitäts-Hautklinik, Hamburg-Eppendorf, developed trichophytia profunda in the form of profusely scaling, eczematous lesions on the back of the left hand. *T. rubrum* was isolated both from the squamae and hairs of the patient and from the hairs of 2 guinea-pigs handled in the course of experiments and was successfully inoculated into the animals. It is emphasized that the guinea-pig infection was spontaneous.

1144. Gullion (G. W.). **Gambel Quail disease and parasite investigations in Nevada.** —*Amer. midl. Nat.*, **57**, pp. 414–420, 1 fig., 1957.

In the course of this survey 'favus' was diagnosed in 2 quail (*Lophortyx gambelii*) by microscopy and it was concluded that *Achorion* [*Trichophyton*] *gallinae* was possibly involved. One of the birds is described as being curiously puffy and bloody round the back of the neck. At waterhole counts in the same area in Jul.–Aug. 1952 evidence of the same disease was seen on at least 18 of 60 adult males, and on a few adult females.

Two quail which died during water requirement experiments were found to be heavily penetrated in all parts of the thoracic cavity with an infection thought to be aspergillosis, and in 1 mycelium was present in all air sacs and even on the gizzard and intestines.

1145. Serpa (J.). **Tricosporonose cutânea curada com biflorina.** [Cutaneous infection by a trichosporon cured with 'biflorina'.]—*An. Fac. Med. Univ. Recife*, **18**, 1, pp. 33–37, 1958.

At the Instituto de Micologia, University of Recife, Brazil, a strain of *Trichosporon margiritipherum* was isolated from an impetiginous lesion of the lips, nostrils, and face of a man. The patient was successfully treated with an antibiotic from *Capraria biflora* having an inhibitory effect on some fungi and *Micrococcus* spp. The author presumes that the fungus was the causal organism.

1146. Bocobo (F. C.), Yuen (Clara), Curtis (A. C.), Block (W. D.), & Harrell (E. R.). **Nutritional studies on Cladosporium werneckii.**—*J. invest. Derm.*, **33**, 1, pp. 5–8, 1959.

Five strains of *C. werneckii* examined at the Dept of Dermatology, University of Michigan Medical School, Ann Arbor, were able to utilize a wide variety of saccharides and sugar alcohols as C sources. Significant growth, due probably to

impurities, occurred even without any added source of N. The fungus was autotrophic with respect to vitamins and capable of growing in the pH range 2·5–7·5. Under the conditions of this study it was not exacting in its requirements for pigment production.

1147. Segretain (G.), Baylet (J.), Darasse (H.), & Camain (R.). **Leptosphaeria senegalensis n. sp., agent de mycétome à grains noirs.** [*L. senegalensis*, agent of black-grained mycetoma.]—*C. R. Acad. Sci., Paris*, **248**, 26, pp. 3730–3732, 3 fig., 1959.

L. senegalensis, isolated from 10 cases of Madura foot in Senegal [cf. **3**, No. 66], is characterized by black, subglobose perithecia, 100–300 μ diam., and claviform asci, 80–100 × 17–22 μ, containing 8 oblong-ellipsoid, hyaline or fuliginous, 4-septate ascospores. Asexual spores were absent and vesicles or chlamydospores rare. The opt. temp. for growth was 37° C. The fungus imparted a brown tinge to peptone agar and a pinkish-brown one to potato-carrot and Czapek's media.

1148. Lemercier (J. P.) & Manouvrier. **Aspergillome bronchiectasiant et aspergillose bronchique.** [Aspergilloma leading to bronchiectasis and bronchial aspergillosis.]—*J. franç. Méd. Chir. thor.*, **12**, 2, pp. 154–163, 1 fig., 1958.

A detailed report from Rouen, France, of a chronic case which remained undiagnosed for 12 yr., being at first considered to be tuberculosis, and then a pulmonary abscess. The correct diagnosis was confirmed by culture of *Aspergillus fumigatus*.

1149. Godfrey (L. B.). **Aspergillosis of the lung.**—*Irish J. med. Sci.*, **381**, pp. 407–411, 1957.

A description of 3 cases at the Dublin Regional Chest Hospital, Blanchardstown.

1150. Hausmann (P. F.). **Pulmonary aspergilloma.**—*J. thorac. Surg.*, **35**, 4, pp. 538–541, 1958. [6 ref.]

This case from Milwaukee Hospital, Wisconsin, of pulmonary aspergilloma in a 52-yr.-old woman was diagnosed from the roentgenographic appearance and confirmed by the culture of *Aspergillus*. Cure was effected by lobectomy and segmental resection. Reference is made to 7 similar cases in the literature [see below].

1151. Foushee (J. H. S.) & Norris (F. G.). **Pulmonary aspergillosis. A case report.**—*J. thorac. Surg.*, **35**, 4, pp. 542–548, 4 fig., 1958. [11 ref.]

This infection of a 44-yr.-old man by *Aspergillus fumigatus* is reported from the Bowman Gray School of Medicine, Winston-Salem, N. Carolina, as the 8th published case of localized pulmonary aspergillosis treated by lobectomy in the United States [see above].

1152. Scarinci (C.). **Sur l'aspergillose primitive chronique du poumon. Action de l'iodure de potassium associé à la delta-cortisone.** [On chronic, primary aspergillosis of the lung. The action of potassium iodide with delta-cortisone.] —*Presse méd.*, **66**, 91, pp. 2083–2085, 1958.

From the Galliera Veneta, Padua, Italy, 2 cases of chronic, primary, pulmonary aspergillosis are reported. The 1st, in a 53-yr.-old male agricultural worker, is attributed to *Aspergillus glaucus*, which was isolated from a bronchoscope specimen: the 2nd, in a 45-yr.-old agricultural worker, to *A. niger*. Clinical and radiological signs disappeared in both cases on treatment with potassium iodide and delta-cortisone. The importance of bronchoscopy in undiagnosed lung conditions is emphasized.

1153. Pimentel (J. C.). **Aspergilose pulmonar de forma tumoriforme ('aspergiloma pulmonar'). Estudo anátomo-patológico de quatro casos e discussão da sua**

patogenia. [Pulmonary aspergillosis of tumoriform type ('pulmonary aspergilloma'). Anatomo-pathological study of 4 cases and discussion of its pathogenicity.]—*Gaz. med. portug.*, **11**, 4, pp. 455–472, 36 fig., 1958. [English and French summaries. 22 ref.]

Observations on 4 cases at the Sanatório D. Carlos 1, Lisbon, have led to the differentiation of several evolutionary phases, most of which are here described for the 1st time. They comprise (1) presence of the fungal mass within a pre-existent cavity; (2) atrophy and erosion of the epithelium at the level of the region of close contact between the fungal mass and the cavity wall; (3) formation of a granulation tissue at the level of the areas devoid of epithelium and its growth in the cavity in the form of orange quarters; (4) more or less extensive filling-up of the cavity lumen by the granulation tissue, which gradually covers the micellar mass and subdivides into smaller portions; (5) formation of giant cells of bizarre appearance perfectly adapted to the contour of the subdivided micellar cells; and (6) reabsorption and disappearance of the micellar mass.

On the basis of these findings the author regards the *Aspergillus* as neither innocuous nor an actual invader. Once installed within the pulmonary cavity, it sets up a pathological process fundamentally akin to that arising from the presence of an intrabronchial foreign body. Such a process will tend to progressive evolution.

[A similar paper based on 3 of the above 4 cases was published in *A Medicina Contemporânea*, **76**, 6, pp. 241–268, 31 fig., 1958.]

1154. Quillec (P.). **A propos d'un cas d'aspergillomes bilatéraux secondaires.** [On a case of bilateral secondary aspergilloma.]—*J. franç. Méd. Chir. thor.*, **12**, 2, pp. 228–233, 3 fig., 1958.

This case in a 54-yr.-old man from Quimper, France, is stated to be the 3rd recorded case of bilateral aspergilloma. *Aspergillus fumigatus* was cultured. Two of these cases, it is noted, were the sequel of tuberculosis.

1155. Krasnitz (A.). **Bronchopulmonary aspergillosis.**—*N.Y. St. J. Med.*, **57**, 23, pp. 3852–3856, 4 fig., 1957.

A typical *A.* sp. was demonstrated by pathological examination of tissue recovered during surgery from a 29-yr.-old female patient.

1156. Webb (J. L.) & Lionnet (S.). **Notes sur les premiers cas d'aspergillose observés à Maurice.** [Notes on the first cases of aspergillosis noted in Mauritius.]—*Rev. agric. Maurice*, **38**, 1, pp. 18–20, 1959.

This note from the Veterinary Laboratory, Mauritius, on the deaths of 7 young chickens and 1 laying hen from *Aspergillus fumigatus* provides a new record for the island.

1157. Lester (G. F.), Conrad (F. G.), & Atwell (R. J.). **Primary laryngeal blastomycosis. Review of the literature and presentation of a case.**—*Amer. J. Med.*, **24**, 2, pp. 305–309, 3 fig., 1958. [25 ref.]

This report from the Ohio Tuberculosis Hospital, Columbus, of primary laryngeal blastomycosis [*Blastomyces dermatitidis*] in a 49-yr.-old man is claimed as the 13th reported case of this condition and the 1st to be treated with 2-hydroxy-stilbamidine (225 mg. daily for 30 days). The pathogen, which was not cultured, was diagnosed from biopsy tissue.

1158. Wolf (Griselda F.), Schwartzman (R. M.), & Sautter (J. H.). **Blastomycosis in the dog. Two cases with ocular manifestations.**—*Vet. Med.*, **53**, 11, pp. 595–600, 6 fig., 1958. [14 ref.] [*V.B.*, **29**, p. 301.]

After briefly reviewing canine blastomycosis (*Blastomyces dermatitidis*) [cf. **1**, No.

2252] the authors draw attention to 2 cases in Minnesota in which ocular disorders were the initial sign of the disease. In the 1st of the cases detailed, a 2-yr.-old mongrel, there was exophthalmia and miosis of the right eye and in the 2nd, a 5-yr.-old German Shepherd, iris bombé was present in both eyes.

1159. Quijano (M.). **Importancia de la moniliasis en cirugiá general.** [The importance of moniliasis in general surgery.]—*Pren. méd. mex.*, **22**, 8, pp. 340–341, 1958.

This is an editorial note on the causes, dangers and frequency of moniliasis in surgical patients. It is recognized that the actual frequency of this complication is difficult to determine; nevertheless, it is not considered so great as to justify the prophylactic use of fungicides.

1160. Higuchi (K.) & Iwasaki (H.). **Systemic moniliasis complicated with leukaemia.**—*Kyushu J. med. Sci.*, **9**, 4, pp. 139–144, 4 fig., 1958.

Autopsies on 2 male patients (30 and 22 yr.) at the clinic of Kyushu University, Fukuoka, Japan, revealed lesions caused by *Candida albicans* [see below] in the lungs, tonsils, intestines, and colon of both, while in 1 the bronchus, pleura, oesophagus, and spleen were also involved. The protracted administration of penicillin is believed to have been concerned in the etiology of the disease.

1161. Higuchi (K.), Urabe (H.), & Toshitani (H.). **Statistical observation of moniliasis in the field of dermatology.**—*Kyushu J. med. Sci.*, **9**, 4, pp. 145–151, 1958.

A 10-yr. (1947–56) survey of the incidence of infection by *Candida albicans* among patients in 21 University hospitals in Japan [see above] revealed the low percentage of 0·2. Frequency increased towards the South and the most prevalent form of the complaint was erosio interdigitalis blastomycetica (47·2%). A detailed analysis of the statistics is presented.

1162. Kelly (J. P.) & Fungigiello (Florence). **Candida albicans : a study of media designed to promote chlamydospore production.**—*J. Lab. clin. Med.*, **53**, 5, pp. 807–809, 1959.

Maize meal or cream of rice agar, both supplemented by 1% tween agar, were the best of the media tested at New Rochelle Hospital, New York [cf. **2**, No. 2367].

1163. Artagaveytia-Allende (R. C.) & Silveira (J. S.). **La técnica del enriquecimiento en el estudio del aislamiento de levaduras.** [Enrichment technique for the isolation of yeasts.]—*Rev. Ginec. Obstet.* (*Rio de J.*), **53**, 3, pp. 208–212, 1959. [English and French summaries.]

The incidence of yeasts in the vagina of 100 women was determined at the Instituto de Micologia, University of Recife, Brazil. The material was obtained with a cotton plug and (1) examined directly; (2) cultured on Sabouraud glucose agar with achromycin directly or (3) after keeping the plug in Sabouraud glucose broth pH 5·5 for 4 days. The percentages of positive results were 12, 24, and 44, respectively.

1164. Vogel (R. A.) & Krehl (W.). **Experimental sensitization of guinea-pigs with Candida albicans and adjuvants.**—*Amer. Rev. Tuberc.*, **76**, 4, pp. 692–696, 3 fig., 1957.

At the Medical Research Laboratory, Veterans Administration Hospital, Atlanta, Georgia, guinea-pigs sensitized by subcutaneous injection with dead cells of *Candida albicans*, together with adjuvants (a water-in-oil emulsion of dead tubercle bacilli, together with Eudi-joint, a lanolin preparation), became highly sensitive to *Candida* skin test materials. It was found impossible to induce a chronic or

lethal infection in the sensitized animals by intratracheal challenge with the living organism. Pathological changes related to the response of hypersensitive lung tissue to antigen were far more extensive in animals sensitized with adjuvant mixtures than in those sensitized with living cells.

1165. Scuro (L. A.) & Perrone (A.). **Valore diagnostico di alcuni indici immunobiologici per lo studio della candidosi.** [The diagnostic value in the study of moniliasis of certain immunobiological data.]—*G. Malatt. infett. e parassit.*, **11**, 2, pp. 115–119, 1959. [38 ref.]

In tests at the University of Rome on 301 subjects displaying no manifest symptoms of active moniliasis, a suspension of *Candida albicans* was used for the intradermal reaction and a strain of the same fungus isolated from a patient affected by generalized moniliasis for the agglutination reaction. The results showed 30·5% of the subjects examined had in the serum anti-*Candida* agglutinins (titre 1/50–1/800), whereas only 14% had anti-*Candida* complement fixing antibodies (< 1/16). A positive reaction to the intradermal test occurred in 22·59% of the cases.

There was a statistically significant correlation only between the positive nature of the complement fixation reaction and the seroagglutinization reaction.

1166. Tomšíková (Alena) & Wagner (V.). **Inkomplette Antikörper bei der Candida-Gruppe.** [Incomplete antibodies in the *Candida*-group.]—*Z. Immun. Forsch.*, **116**, 3, pp. 239–245, 3 graphs, 1958. [English, French, Spanish, and Russian summaries. 41 ref.]

Studies by an agglutination method for the determination of complete and incomplete antibodies against *C. albicans*, *C. tropicalis*, *C. pseudotropicalis*, *C. krusei*, *C. parakrusei*, and *C. parapsilosis* are jointly reported from the Krankenhaus Bulovka, Prague, and the Institut für Microbiologie und Immunologie der Karls-Universität, Pilsen, Czechoslovakia. The examination of 724 sera from healthy persons and 311 of confirmed or suspected moniliasis revealed incomplete antibodies in both groups, but they reached the max. titre in 34% of the latter as against 31% of the former, the corresponding figures for complete antibodies being 49 and 36%, respectively. Diagnostic significance is attributable exclusively to titres exceeding 1:80.

1167. Hirth (L.), Lebeurier (Geneviève), & Drouhet (E.). **Action de l'amphotéricin B sur le comportement des protéines et des acides nucléiques au cours de la croissance de Candida albicans.** [Action of amphotericin B on the behaviour of proteins and nucleic acids in the course of growth of *C. albicans*.]—*C. R. Acad. Sci., Paris*, **248**, 23, pp. 3333–3335, 2 graphs, 1959.

The growth of *C. albicans* on a synthetic medium supplemented by 1% glucose was retarded in relation to that of the controls by the addition of amphotericin B at 6·2 μg./ml. [**3**, No. 1014], an effect which is tentatively attributed to the inhibition by the drug of the synthesis of ribonucleic acid.

1168. Mankowski (Z. T.). **The experimental pathogenicity of various species of Candida in Swiss Mice.**—*Trans. N.Y. Acad. Sci.*, Ser. II, **19**, 4, pp. 548–570, 9 fig., 1957. [62 ref.]

Neutrophilic leukocytosis resulted from intravenous and intracerebral inoculation with *C. albicans*, *C. stellatoidea*, and *C. tropicalis*. *C. krusei*, and *C. pseudotropicalis* were definitely pathogenic when injected intraperitoneally in mucin and *C. parakrusei* occasionally so. Similar effects were observed in mice intraperitoneally inoculated with the fungi after injection with aureomycin. The central nervous system frequently became involved after intravenous inoculation with *C. parakrusei*,

C. tropicalis, and *C. pseudotropicalis*. The symptoms and the absence of histopathologically demonstrable lesions in the brain suggest that the irritability reactions are due to toxic products of the fungi.

On the basis of these experiments it is proposed that *C.* spp. should be added to the list of potential agents of amyloidosis.

1169. Masquelier (M. J.). **Action préventive des ferments lactiques sur les affections fongiques provoquées por l'antibiothérapie.** [The inhibitory action of lactic enzymes on fungal infections induced by antibiotic therapy.]—*J. Méd. Bordeaux*, **136**, 4, pp. 491–493, 1959.

From the Faculté de Médecine et Pharmacie de Bordeaux, France, it is reported that fungal infections of the intestinal tract, especially those due to *Candida albicans*, which are induced by antibiotic therapy, can be controlled by the administration of lactobacteria. Cultures of *Lactobacillus acidophilus*, lyophilized when in an actively growing state and reconstituted before use with a liquid containing growth factors, especially vitamin B, is recommended. This treatment restores the balance of the flora of the intestinal tract. The strain of lactobacillus must not be too sensitive to the antibiotics in use, but extremely resistant strains are considered potentially dangerous.

1170. Welsch (M.). **A propos de la prévention des super-infections post-antibiotiques par microbiothérapie.** [On the prevention of post-antibiotic super-infections by microbial therapy.]—*Rev. méd. Liège*, **14**, 9, pp. 295–302, 1959.

At the Laboratorie de Microbiologie générale et médicale, University of Liège, a study was made of the resistance to antibiotics of certain micro-organisms, including *Lactobacillus acidophilus*, *Bacillus subtilis*, and a mesophilic yeast. These were supplied by commercial preparations recommended for the prevention of super-infections by *Candida albicans* and certa in bacteria, apt to occur during prolonged antibiotic therapy. Only the yeast was resistant to the antibiotics employed; it would therefore be the only organism of the three of use for the purpose stated. It was capable of satisfactory growth at 37° C. The conclusions of Masquelier [see above] are discussed.

1171. Di Marco (A.) & Ghione (M.). **Chemioterapia delle infezioni micotiche.** [Chemotherapy of the mycotic infections.]—*G. ital. Chemioterap.*, 4, 3–4, pp. 451–469, 1 graph, 1957. [English and Spanish summaries. 69 ref.]

A new antibiotic, 1163 F.I. containing a polyene chromophore, isolated from cultures of *Streptomyces lucensis* (a sp. nov.) at the Laboratori di Microbiologia e Chemioterapia della 'Farmitalia', Milan, proved to be active against fungi, especially *Candida albicans*, the growth of which was inhibited at a min. dose of 0·8 μg./ml. Experimental moniliasis in the rat was also effectively combated.

1172. Caretta (G.) & Füresz (S.). **Azione della tricomicina e della nistatina sulle Candidee e sul Trichomonas vaginalis.** [The action of trichomycin and nystatin on *Candida* spp. and on *T. vaginalis*.]—*G. Mal. infett.*, **10**, 9, pp. 742–744, 1958.

In *in vitro* tests trichomycin at 0·1–0·8 μg./ml. inhibited the growth of strains of *Candida*, *Torulopsis*, *Debaryomyces*, *Trichosporon*, and *Trichomonas vaginalis*; nystatin inhibited the growth of all, except the last (against which it was inactive), but at a much higher conc.

1173. Osteux (R.), Tran-van-ky, & Biquet (J.). **Contribution à l'étude du mode d'action de la nystatine sur Candida albicans.** [Contribution to the study of the mode of action of nystatin on *C. albicans*.]—*C. R. Acad. Sci., Paris*, **247**, 25, pp. 2475–2477, 1958.

Substantial numbers of phosphorus ions were exuded by P^{32}-labelled cells of

C. albicans into Sabouraud's liquid medium with the addition of 1 mg./ml. nystatin dissolved in propylene-glycol, suggesting that the antimycotic action of the drug is related to a modification of permeability of the cell wall.

1174. Larkin (R.). **Side effects of tetracycline alone and of tetracycline with nystatin.**—*Lancet*, **1**, 7685, pp. 1228–1229, 1959.

Of 55 patients, mainly with acute or chronic respiratory infections, treated with tetracycline (250 mg. 4 times daily) alone, 37 developed gastrointestinal disturbances but only 4 did so in a similar series of 43 in which there was a supplement of 250,000 units of nystatin per dose. On the 5th day of treatment rectal swabs positive for yeasts (including *Candida albicans*) were obtained from 11 of 19 patients receiving tetracycline and from 2 of 18 receiving tetracycline+nystatin; 3 of the 1st group and 0 of the 2nd developed oral thrush.

1175. McCoy (Eloise) & Kiser (J. S.). **An evaluation of nystatin and candicidin against a standardized systemic Candida albicans infection in Mice.**—*Antibiot. Ann., 1958–9*, pp. 903–909, 1959.

At the Research Division, American Cyanamid Company, Pearl River, N.Y., a 3-dose schedule subcutaneously was adopted for testing the effect of nystatin on standardized *C. albicans* systemic infection of mice. Fewer than 3 doses were less effective, and more than 3 produced tissue damage and general debility. Effects of intraperitoneal applications were less reproducible, and oral administration was ineffective. Candicidin, evaluated against nystatin, was more toxic to mice, but also most effective when administered in 3 subcutaneous doses, and the dose response was greater with candicidin on the single subcutaneous dosage basis. As was the case with nystatin, the effects of intraperitoneal application of candicidin were not reproducible and oral administration ineffective.

1176. Lepper (M. H.), Spies (H. W.), & Rubenis (Mary). **Use of amphotericin to eliminate Candida from the stools of Infants treated with tetracycline.**—*Antibiot. Ann., 1958–9*, pp. 672–676, 1959.

Among 189 patients studied at the Dept of Preventive Medicine, University of Illinois, and Municipal Contagious Disease Hospital, Chicago, 56 had *C. albicans* in the stools, 15 *C. tropicalis*, 1 both, and 1 *C. krusei*. In 32 of 41 patients with negative cultures and treated with tetracycline (50 mg./kg./day) for 2 weeks the cultures became positive for *C. albicans*, and in 1 for *C. tropicalis*. In 18 positive patients *C. albicans* disappeared from cultures following treatment with tetracycline: 3 strains of *C. tropicalis* and 1 of *C. krusei* persisted. After treatment of another 48 negative cases with tetracycline for 1 week, 1 acquired *C. albicans* and 1 *C. tropicalis*. Among the remaining patients treated for 1 week, only 1 of 23 with positive cultures lost *C. albicans*, and of 4 cases with *C. tropicalis* 2 remained unchanged and in 2 there was a change of sp. *C. albicans* appeared in 1 of 20 negative cases treated with 5 mg./kg./day or less amphotericin. Treatment with 10 mg./kg./day or more of 28 similar patients was ineffective.

1177. Caretta (G.). **Il potere antifungo contro i lieviti asporigeni della tricomicina.** [The antifungal effect upon asporogenous yeasts of trichomycin.]—*Nuovi Ann. Ig.*, **9**, 6, pp. 557–559, 1958.

Rabbits given (with their food) a total of 5·5 g. trichomycin over a period of 35 days and others given 8 g. over a period of 120 days lost, respectively, 20% and 60% of their weight, but showed no lesions histologically apparent in preparations made from different organs.

Other rabbits were given with their food, every day for 15 days, heavy doses of a virulent strain of *Candida albicans*. Eight days after the treatment had ceased

the fungus was detected in faeces, and trichomycin was then administered at the rate of 3 or 6 mg./kg. for 4 consecutive days. After the 3rd day's treatment at the higher rate *C. albicans* was no longer found in the faeces, while a sparse development occurred in rabbits given the lower rate for 4 days.

1178. Jensen (Magda). **Vaginitis mycotica. Behandlingsforsøg i graviditeten med sterosan.** [Mycotic vaginitis. Experiments in treatment with sterosan during pregnancy.]—*Nord. Med.*, **61**, 20, pp. 758–760, 1 fig., 1959. [English summary.]

All 37 patients treated with sterosan either locally or orally (or combined in 12 cases) at St. Joseph's Hospital, Copenhagen, experienced marked subjective improvement but the causal organism (*Candida albicans*) was not destroyed.

1179. Kozinn (P. J.), Taschdjian (Claire), Burchall (J. J.), & Wiener (H.). **Comparative effectiveness of antibiotic dusting powders in candidal and non-candidal diaper rashes.**—*Antibiot. Ann., 1958–9*, pp. 910–913, 1959.

Three types of dusting powders containing, respectively, nystatin, nystatin-gramicidin-neomycin, and talcum without medication, were used at the Dept of Pediatrics, Maimonides Hospital, Brooklyn, to treat 70 cases of diaper rash, 28 of which were candidal and 42 non-candidal in etiology: the 2 types were treated similarly. While non-candidal rash was improved with all 3 types of dusting powder, the cutaneous moniliasis responded well to the medicated preparations only.

1180. Lepper (M. H.), Lockwood (J.), Spies (H. W.), & Rubenis (Mary). **Studies on the epidemiology of strains of Candida in hospital wards.**—*Antibiot. Ann., 1958–9*, pp. 666–671, 1959.

At the Dept of Preventive Medicine, University of Illinois, and the Municipal Contagious Disease Hospital, Chicago, the min. inhibitory concs. of brilliant green, crystal violet, and amphotericin were determined for strains of *C. albicans* isolated serially from the stools of patients in a pertussis ward. That there was frequent spread of *C. albicans* from patient to patient was evidenced by the spread of a strain from 1 patient to 3 others in 1 week.

1181. Kozinn (P. J.), Wiener (H.), Taschdjian (Claire L.), & Burchall (J. J.). **Is isolation of Infants with thrush necessary?**—*J. Amer. med. Ass.*, **170**, 10, pp. 1172–1174, 1959. [13 ref.]

From the Dept of Pediatrics, Macmonides Hospital, the view is stated that infants contract *Candida albicans* infection at birth, and that infection from other cases, or from the nursing staff, is unlikely to happen [cf. above].

1182. Costa (G.), Moretti (E.), & Zocchi (S.). **Sul significato del reperto di miceti del genere Candida nell' escreato e nelle feci degli ammalati di tubercolosi polmonare.** [On the significance of the demonstration of fungi of the genus *Candida* in the sputum and in the faeces of patients with pulmonary tuberculosis.]—*Lotta c. Tuberc.*, **28**, 8–9, pp. 738–749, 1958. [61 ref.]

C. spp., with *C. albicans* largely preponderating, were isolated from both the sputa and faeces of 92 of 247 patients (37·2%) in clinics in Genoa, and from the faeces alone in 32 (12·9%). Other spp. occurring in both groups were *C. tropicalis*, *C. stellatoidea*, *C. parakrusei*, *C. lipolitica*, and *C. guilliermondii*, while the sputa alone yielded *C. rugosa*, *C. pseudotropicalis*, *C. parapsilosis*, *C. montpellieri*, *C. utilis*, and *C. curvata*. The positive findings predominated in subjects with pulmonary bronchiectasis, whether positive or negative to the tuberculin test, and those undergoing broad-spectrum antibiotic and cortisone therapy.

Promising results, especially in respect of the reduction of intestinal infection, were obtained by the treatment of 32 patients with nystatin [mycostatin] at 30,000–40,000 units/kg. daily for 10 days.

1183. Serpa (J.). **Flora micótica das fezes e sindrome tóxico do lactente.** [Fungi of the faeces and toxic syndrome in infants.]—*Arch. Pediat., Rio de J.*, **30**, 10, pp. 7–31, 1958.

Three groups of infants were studied: (1) 46 healthy 3-day-old infants; (2) 25 healthy infants of 3–12 months; (3) 25 of the same age as (2) but with diarrhoea and toxic syndrome. Species of *Candida* were found in 47% in the 1st group, *Candida albicans* in 30% and *C. tropicalis* in 6%. The percentages in the 2nd group were: 68, 20, and 16 and in the 3rd: 80, 36, and 24. None of these infants had been treated with antibiotics.

1184. Barrett (B.), Volwiler (W.), Kirby (W. M. M.), & Jenson (C. R.). **Fatal systemic moniliasis following pancreatitis.**—*Arch. intern. Med.*, **99**, 2, pp. 209–213, 4 fig., 1957. [14 ref.]

This is a report from the University of Washington School of Medicine, Seattle, of a fatal case of moniliasis in a 68-yr.-old white labourer, arising as a complication of pancreatitis with pancreatic abscess. *Candida albicans* was isolated from the blood during life and was demonstrated in the pancreas, kidneys, and myocardium at post mortem. The probable role of long-term, broad-spectrum antibiotic therapy in the development of the condition and the failure of oral mycostatin therapy is discussed.

1185. Olmer (J.), Payan (H.), Casanova (P.), Muratore (R.), & Serratrice (G.). **Mycose a forme cérébrale après antibiothérapie.** [Cerebral mycosis after antibiotic therapy.]—*Presse méd.*, **65**, 76, pp. 1717–1719, 1957.

Autopsy of a 55-yr.-old man, who died after a course of antibiotic therapy at the Laboratoire d'Anatamo-pathologie de la Faculté de Médecine, Marseille, revealed a tumour in the brain infiltrated with fungal hyphae. The organism appeared to be *Candida albicans*, but cultures were not obtained.

1186. Scuro (L. A.), Pagliari (M.), & Perrone (A.). **Isolamento di miceti del genere Candida in soggetti ospedalizzati e suoi rapporti con la terapia antibiotica.** [The isolation of fungi of the genus *Candida* from hospital patients and their relation to antibiotic therapy.]—*G. Malatt. infett. e parassit.*, **11**, 2, pp. 120–123, 1959. [46 ref.]

Studies were made in 1956–7 at the University of Rome to determine whether or not *Candida* spp. were present in patients in hospital who had been treated with antibiotics. The patients (200) were in good general condition and showed no symptoms of active moniliasis. In spite of this, [unspecified] *Candida* spp. were found in the throat swab, expectorate, bile, and urine of 18·3, 18·6, 17·8, and 3·1% of the patients, respectively. Treatment with penicillin, streptomycin, tetracycline, and chlorophenicol significantly increased the percentage of positive results in the throat swab and the expectorate (4 and 3·6% increase, respectively) over patients not given antibiotic treatment.

1187. Yacowitz (H.), Wind (S.), & Levin (J. D.). **The incidence of Candida albicans in Poultry. Evaluation of nystatin and chlorhydroxyquinoline in the prevention of experimental moniliasis.**—*Antibiot. Ann., 1958–9*, pp. 994–997, 1959.

At the Squibb Institute for Medical Research, Division of Olin Mathieson Chemical Corporation, New Brunswick, New Jersey, 71–125 mg./kg. of nystatin in the rations markedly reduced or prevented the development of moniliasis in chicks orally infected with *C. albicans*; 250–900 mg./kg. chlorhydroxyquinoline was ineffective; a 2,500 mg./kg. level was protective against moniliasis but was toxic. A relatively high incidence of *C. albicans* was found in the crops of laying hens examined at a poultry processing plant.

1188. Redaelli (G.). **Ricerche sulle mastiti micotiche. I. Riproduzione sperimentale della mastite criptococcica. II. Controllo sperimentale dell' azione patogena di alcuni blastomiceti sporigeni e asporigeni (Saccharomyces, Hansenula, Pichia, Torulopsis e Candida) per la mammela degli animali da latte.** [Researches on mycotic mastitis. I. Experimental reproduction of cryptococcal mastitis. II. Experimental study of the pathogenic action on the udder of some sporogenous and asporogenous yeasts (*Saccharomyces, Hansenula, Pichia, Torulopsis*, and *Candida*).]

Redaelli (G.) & Rosaschino (F.). **III. Tentativi di terapia della mastite criptococcica.** [III. Attempts at the therapy of cryptococcal mastitis.]—*Arch. vet. ital.*, **8**, pp. 39–65, 97–120, 311–322, 4 pl. (1 col.), 6 graphs, 1957. [English, French, German, & Spanish summaries.]

In studies at the University of Milan the author inoculated via the teat 18 goats and 2 cows with strains of *Cryptococcus neoformans* isolated from acute cases of bovine mastitis; inoculation was effected in 32 quarters at dosages of 1 and 1,000 million fungal cells.

All the mammary quarters inoculated with the strains of *C. neoformans* which had proved to be virulent to small laboratory animals developed lesions which closely resembled from clinical, pathological, and mycological points of view those of natural infections. A strain non-pathogenic to laboratory animals and very probably of saprophytic origin caused no lesion in spite of serial passage through the udder of 6 animals.

The evidence indicated that the yeast alone appears able to cause mastitis, even in the absence of antibiotic treatments.

Some goats and cows experimentally infected with strains of *Candida, Torulopsis, Saccharomyces, Pichia*, and *Hansenula* isolated from morbid processes in the udder of the cow occasionally presented an inflammatory reaction which, however, was not closely comparable with that seen in natural infections. Only *Candida pelliculosa, C. tropicalis*, and *Saccharomyces* caused in goats and cows the development of a transient mastitis, which rapidly subsided. Except for 1 positive result, it was not possible to obtain with *S. fragilis* changes in the secretion comparable to those observed in natural infection. All the other fungal strains were completely negative and soon disappeared from the secretion.

Other experiments clearly demonstrated the influence of penicillin on the invasive power and growth rate of *Candida* strains. *C. tropicalis*, when injected into cows and goats with 1 million penicillin I.U. produced an inflammatory reaction which was much more apparent than that which developed in the opposite quarters, in which the antibiotic was not associated with the yeast. Altogether, the evidence suggested a sharp clinical and pathological distinction between these forms and those produced by yeasts of the genus *Candida* and similar agents.

In the 3rd paper *in vitro* tests against various strains of *Cryptococcus neoformans* are described, in which actidione was antifungal at 5–10 μg./ml., nystatin at 40–160 μg./ml., and neomycin and polymyxin B at 320–640 μg./ml. In *in vivo* tests, only with actidione and nystatin was it possible to obtain sterilization of the secretion, though the clinical aspects of the mammary changes remained unaffected.

1189. Ajello (L.), Walls (K.), Moore (Jane C.), & Falcone (R.). **Rapid production of complement fixation antigens for systemic mycotic diseases. I. Coccidioidin: influence of media and mechanical agitation on its development.**—*J. Bact.*, **77**, 6, pp. 753–756, 1959.

In a comparison at the Communicable Disease Center, Atlanta, Georgia, of 5 media for their suitability for the production of complement fixation antigen from *Coccidioides immitis*, shake culture in a neopeptone dialyzate medium at 25° C., harvested after 3 weeks, proved best. The method is simple, rapid, and

reproducible (cf. Pappagianis *et al.*, **3**, No. 400, and **3**, No. 555), and the product as antigenic as standard coccidioidin and free of anticomplementary activity, while lacking in skin test reactivity.

1190. Colwell (J. A.). **Remission in disseminated coccidioidomycosis produced by amphotericin B.**—*Ann. intern. Med.*, **50**, 4, pp. 1028–1035, 1959. [Summary in Interlingua. 18 ref.]

A 20-yr.-old patient at the 4161st U.S. Air Force Hospital, Tucson, Arizona, reacted favourably to a month's treatment but a relapse ensued. However, a further course of intravenous therapy (total dose of 3 g. over a 28-week period) produced a remission still operative after 10 months.

1191. Hyde (L.) & Holman (D. C.). **Coccidioidal spontaneous pneumothorax.**—*Ann. intern. Med.*, **47**, 6, pp. 1234–1242, 4 fig., 1957. [Summary in Interlingua. 18 ref. *T.D.B.*, **55**, p. 451.]

As coccidiodal (*Coccidioides immitis*) spontaneous pneumothorax is quite rare, this case in a 31-yr.-old white man is fully reported from the Veterans Administration Hospital, Long Beach, California. The patient was treated with thoracentesis and resection of the cavity, the post-operative course being uneventful.

1192. Straub (M.) & Schwarz (J.). **Coccidioidomycosis in Man and Dog.**—*Ned. Tijdschr. Geneesk.*, **101** (ii), 32, p. 1517, 1957.

A case of pulmonary infection simulating tuberculosis is reported from Rotterdam, X-ray examination revealed a coin lesion of 1·5 cm. diam. containing typical elements of *Coccidioides immitis*. The 45-yr.-old patient had suffered from a severe influenzal disease in a W. State of the U.S.A. on a visit the previous year. The coccidioidin test was positive and that for tuberculin negative.

In 8 of 40 consecutive necropsies on patients dying from causes other than coccidioidomycosis in Arizona, arrested primary foci of infection by the fungus were detected, while similar lesions were observed in 8 of 34 dogs.

1193. Hugenholtz (P. G.), Reed (R. E.), Maddy (K. T.), Trautman (R. J.), & Barger (J. D.). **Experimental coccidioidomycosis in Dogs.**—*Amer. J. vet. Res.*, **19**, 71, pp. 433–439, 8 fig., 1958. [17 ref. *V.B.*, **28**, 12, No. 3898.]

At the College of Agriculture, University of Arizona, Tucson, dogs were experimentally infected by intratracheal insufflation with *Coccidioides immitis* arthrospores. Signs of cough, listlessness, diarrhoea, anorexia, and loss of weight and hair appeared 2–28 days after inoculation. Dogs inoculated with 500,000 or 1,000,000 spores became sick earlier than and were more severely affected than dogs given 1,000–25,000 spores. Results from the examination of biopsy and necropsy specimens taken 4–185 days after inoculation are described. Changes similar to those seen in about 70% of thoracic radiograms of human cases of primary coccidioidomycosis developed in dogs after 8–21 days.

Complement-fixing antibody appeared by 28–36 days but no precipitins were detected. Skin sensitivity was not demonstrated before 112 days.

1194. Pappagianis (D.), Smith (C. E.), Berman (R. J.), & Kobayashi (G. S.). **Experimental subcutaneous coccidioidal infection in the Mouse.**—*J. invest. Derm.*, **32**, 5, pp. 589–598, 14 fig., 2 graphs, 1959.

At the Naval Biological Laboratory, School of Public Health, University of California, Berkeley, mice inoculated subcutaneously with 100 arthrospores of a virulent strain of *Coccidioides immitis* developed localized abscesses in which there was more extensive necrosis than in the abscesses produced by similar inoculation with a relatively avirulent strain. A fibroblastic wall which developed at the periphery

of the lesion had an enclosing effect on the intense early polymorphonuclear response and necrosis which followed. At 40 and 90 days the lesions consisted of a necrotic purulent or caseous centre, a zone of polymorphonuclear and mononuclear cells, and a rim of spongy epithelioid cells, all surrounded by a fibrous capsule and 'granulation' tissue. The fungus could be cultured from some of these abscesses, but not from others, and periodic acid-Schiff staining revealed many degenerate fungus cells or fragments thereof. Mice which developed abscesses after subcutaneous inoculation with the virulent strain were resistant to subsequent intraperitoneal challenge by the same strain. Preliminary studies also indicated an increased resistance to intranasal challenge.

1195. Maddy (K. T.). **Ecological factors of the geographic distribution of Coccidioides immitis.**—*J. Amer. vet. med. Ass.*, **130**, 11, pp. 475–476, 1 map, 1957. [*V.B.*, **28**, No. 388.]

The author reports that the results of his coccidioidin skin testing of home-raised cattle in various parts of the Southwest of the United States, particularly Arizona, show areas where *Coccidioides immitis* is endemic to correspond to the Lower Sonoran Life Zone. This region is characterized by a rainfall of 3–20 in. and max. and min. monthly, and av. yearly temps. of 80 (July), 39 (Jan.), and 60° F., respectively.

The dog is stated to develop disseminated infections more frequently than does man.

1196. Ravisse (P.), Reynaud (R.), Depoux (R.), & Salles (P.). **Sur le premier cas de cryptococcose découvert en A.E.F.** [On the first case of cryptococcosis to be discovered in French Equatorial Africa.]—*Presse méd.*, **67**, 18, pp. 727–728, 1959.

This case, reported from the Institut Pasteur, Brazzaville, was of an African of 18 yr. who had just given birth to a still-born child. Death took place 5 weeks after the onset of the disease, and *Cryptococcus neoformans* was seen in and isolated from the brain.

1197. White (M.) & Arany (L. S.). **Resection in pulmonary cryptococcosis (torulosis).**—*J. thorac. Surg.*, **35**, 3, pp. 402–410, 4 fig., 1958. [53 ref.]

A case of pulmonary *Cryptococcus neoformans* infection in a 37-yr.-old white army veteran successfully treated by resection is described from the Veterans Administration Hospital, Walla Walla, Washington, and 26 similar cases reported in the literature are summarized. It is concluded that the early surgical excision of a localized pulmonary lesion before the onset of central nervous dissemination is not only a preventive but a curative procedure.

1198. Canellis (P.). **Geotrichosis der Kopfhaut unter dem Bilde einer Folliculitis decalvans.** [Geotrichosis of the scalp in the guise of a folliculitis decalvans.]—*Hautarzt*, **10**, 1, p. 43, 1 fig., 1959.

The case herein reported from Athens occurred in a 50-yr.-old man and is believed to be the 1st of its kind on record. *G. candidum* was isolated in pure culture. The condition was cured in 25 days by the daily oral administration of 2,000,000 units of mycostatin and local treatment with the same drug as an ointment.

1199. Schwarz (J.) & Baum (G. L.). **The history of histoplasmosis, 1906–1956.**—*New. Engl. J. Med.*, **256**, 6, pp. 253–258, 2 fig., 1957. [46 ref.]

An interesting summary including a reproduction of the figures of *Histoplasma capsulatum* from Darling's original article and portraits of 8 workers who have made major contributions to the knowledge of histoplasmosis.

1200. Furcolow (M. L.). **Histoplasmosis.**—*Amer. J. Nurs.*, **59**, 1959. Rakich (J. H.). **Nursing aspects of histoplasmosis.**—Ibid., **59**, 1959.

The 1st paper is a popular note on all aspects of the disease. The 2nd deals with those aspects with which the nurse is directly concerned, including skin testing and a careful watch for signs of avitaminosis.

1201. Sweany (H. C.), Gorelick (D.), Coller (F. C.), & Jones (J. L.). **Pathologic findings in benign pulmonary histoplasmosis ; preliminary report. Parts I & II.**—*Dis. Chest*, **34**, 2, pp. 119–137, 35 fig.; 3, pp. 257–273, 12 fig., 1958. [Spanish, French, and German summaries.]

From the Missouri State Sanatorium are reported in detail the pathological findings of proven histoplasmosis (*Histoplasma capsulatum*) in 21 cases with circumscribed lesions and 16 with clinically active lesions. There were in addition 3 doubtful cases in each group which were thought to be histoplasmosis, but in which no pathogen was demonstrable. In accordance with the findings the cases were grouped as follows: group (1) centrifugally formed spherical lesions; (2) encapsulated infiltrates; (3) caseous nodular lesions resembling caseous tubercles (1–15 mm. diam.) and fibrocaseous calcific or calcificossified lesions; (4) chronic pneumonitis, subdivided into several phases of age development, from histiocytic infiltration and early organizing fibrinous pneumonia with histiocytes to the late granulomatous type of lesion simulating sarcoidosis; (5) ulcerative types, either caseo-ulcerative (an advanced stage of the caseo-nodular), or fibroid, ranging from thin walled, cystic, to thick, fibrous-walled cavities; (6) bronchiectasis, similar in appearance to bronchiectasis resulting from other causes; (7) the pleuritic type due to fungal invasion of the pleura; and (8) a composite group involving 2 or more of the types specified.

The best stain for the yeast phase was Gomori methenamine silver as adapted by Grocott (*Amer. J. clin. Path. Tech. Bull.*, **16**, p. 177, 1946). Of 14 definitely positive active cases cultured and/or inoculated into mice, only 7 gave positive results. Where possible the findings were confirmed by use of the polariscope (cf. Potenza & Feo, *Amer. J. clin. Path.*, **26**, p. 91, 1956); while not diagnostic, the method does show the presence of a polarizing substance, possibly a polysaccharide.

A theory is advanced for the possible evolution of the parasites in the body from the phagocytized cells in the macrophages to a quiescent spore-like form in the fibroid tissue, and later a re-awakening of these spore-like forms (endospores) into active yeast cells, after an interval ranging from months to decades.

1202. Zaoli (G.). **L'istoplasmosi e la sua incidenza nelle malattie di orecchio, naso, e gola.** [Histoplasmosis and its incidence in diseases of the ear, nose, and throat.]—*G. Malatt. infett. e parassit.*, **11**, 3, pp. 189–202, 7 fig., 1959. [83 ref.]

After noting the geographical distribution of *Histoplasma capsulatum* and the history of the fungus, the author gives a useful account, based largely on the literature, of the disease as it affects the ear, nose, and throat, emphasizing mainly the epidemiology and clinical and anatomo-pathological features.

1203. Young (R. V.), Cleve (E. A.), & Vicente-Mastellari (A.). **Acute pulmonary histoplasmosis on the Isthmus of Panama.**—*Arch. intern. Med.*, **100**, 3, pp. 430–435, 1957. [15 ref.]

Details of 44 cases of benign *Histoplasma capsulatum* infection (2 proved by culture) in an area where histoplasmosis is endemic are summarized by tabulations. In addition 1 fatal case is recorded.

1204. Wood (L. E.), Furcolow (M. L.), & Willis (M. J.). **An evaluation of tuberculosis case finding by tuberculin testing and some observations of**

histoplasmin sensitivity among young school children.—*Amer. Rev. Tuberc.*, **78**, 5, pp. 667–681, 3 graphs, 1958. [Summaries in Spanish and French.]

This report includes a tabulation of the histoplasmin reactors found annually among kindergarten school children in Kansas City during 1947–57. For the whole period, of 29,634 white and 6,369 negro children 10·4 and 8·7%, respectively, reacted positively to histoplasmin.

1205. Levaditi (J.-C.), Drouhet (E.), Segretain (G.), & Mariat (F.). **Sur le caractère histiocytaire de l'histoplasmose à petites formes et le caractère gigantocellulaire de l'histoplasmose à grandes formes.** [On the histiocyte-type of reaction to 'small form' histoplasmosis and the giant-cell-type of reaction to 'large form' histoplasmosis.]—*Ann. Inst. Pasteur*, **96**, 6, pp. 659–668, 1959.

Work at the Institut Pasteur, Paris, shows that, despite individual variation, the cellular reaction in histoplasmosis is usually of the foreign body granuloma type, both in human lesions and in experimental infections of guinea-pigs and hamsters. But when the disease is induced by small-cell yeasts (*Histoplasma capsulatum*) the cells of the granuloma are histiocytes: when by large-cell yeasts (African histoplasmosis [*H. duboisii*]) the granuloma consists of giant-cells. In experimental histoplasmosis with large-cell yeasts the reactions appear successively, corresponding to the increasing diameter of the parasitic cells. These results are said to agree with data on the physiology of histiocytes and suggest that cellular reaction depends on the size of the parasite regardless of the organ in which the lesion occurs.

1206. Salvin (S. B.) & Smith (R. F.). **Antigens from the yeast phase of Histoplasma capsulatum. III. Isolation, properties, and activity of a protein-carbohydrate complex.**—*J. infect. Dis.*, **105**, 1, pp. 45–53, 4 graphs, 1959.

A purified antigen prepared from the broth in which the cells had been grown and allowed to autolyse was active in the inducement of delayed-type reactions in sensitized guinea-pigs and humans [cf. **2**, No. 1563]. It was also capable of increasing the resistance of mice to lethal challenge. The antigen was shown by physicochemical analysis to consist of carbohydrate and protein moieties.

1207. Edwards (G. A.), Edwards (M. R.), & Hazen (Elizabeth L.). **Electron microscopic study of Histoplasma in Mouse spleen.**—*J. Bact.*, **77**, 4, pp. 429–438, 8 fig., 1959.

In an electron microscopic study at the New York State Dept of Health, Albany, of 2 strains of *H. capsulatum* and 1 of *H. duboisii* in mouse spleen, no capsule was seen in either. While cells of *H. duboisii* were on av. 5·5 times larger than those of *H. capsulatum*, the 2 spp. were similar in their fine structure, and did not much differ from any highly differentiated animal cell in the structure of the plasma membrane, cytoplasmic matrix, mitochondria, reticulum, and Golgi complex. The nucleus is fully differentiated, and the cell wall is variable as regards thickness and lamination. Tissue reactions included the formation of intracytoplasmic structures of unknown nature, lipid accumulation, and the breakdown of cytoplasmic components near the fungi in a manner leading to preferential interruption of the mitochondrial membranes and giving the appearance of a microrugose zonal ring of cytoplasmic debris immediately around the cell wall.

1208. Edwards (M. R.), Hazen (Elizabeth L.), & Edwards (G. A.). **The fine structure of the yeast-like cells of Histoplasma in culture.**—*J. gen. Microbiol.*, **20**, 3, pp. 496–503, 6 pl., 1959.

In this study of cells of the yeast phase of *H. capsulatum* and *H. duboisii* in culture [cf. above] no evidence was found of a capsule or slime layer on the outside of the

wall in either. The micromorphology of single and budding cells, and some details of the budding process, are described. The cell wall is laminated in both, and slightly thicker in *H. duboisii*. The laminations are comparable in density and structure with the basement membrane in certain insect cells, which is composed of chitin [cf. **2**, No. 732, and Blank, *Canad. J. Microbiol.*, **1**, 1, pp. 1–5, 1954] and protein. The cells of the 2 spp. were strikingly similar in structure, resembling animal cells in possessing endomembrane systems and in the numbers and forms of the mitochondria.

1209. Taschdjian (Claire L.). **Hyphal fusion studies on Histoplasma capsulatum and Histoplasma duboisii Vanbreuseghem 1952.**—*Mykosen*, **2**, 1, pp. 1–6, 1 fig., 1959.

At the Dept of Pediatrics, Maimonides Hospital, Brooklyn, New York, hyphal anastomoses were observed when each of 4 strains of *H. capsulatum* came into contact with each of 4 strains of *H. duboisii*. In view of this, and of the variability of fungus morphology *in vivo* due to host reaction, it is proposed that *H. duboisii* be regarded not as a distinct sp. but as a variant of *H. capsulatum*.

1210. Gordon (M. A.). **Fluorescent staining of Histoplasma capsulatum.**—*J. Bact.*, **77**, 6, pp. 678–681, 5 fig., 1959.

In the present study [cf. **3**, No. 532] staining of *H. capsulatum* in the tissue phase with fluorescein-labelled globulin from rabbits injected with the fungus permitted differentiation from the tissue forms of other human pathogens, including *Blastomyces dermatitidis*, *Cryptococcus neoformans*, *Sporotrichum schenkii*, and *Leishmania donovani*. Spherules and endospores of *Coccidioides immitis* exhibited a brilliant auto-fluorescence under ultra-violet light, indistinguishable in the majority of cells from that of fluorescein-stained material. *H. duboisii* and a duboisioid strain of *H. capsulatum* were peculiar in that only the small buds fluoresced, to the exclusion of more mature cells. A similar effect was observed in 2 strains of *B.* [*Paracoccidioides*] *brasiliensis*.

1211. Ajello (L.). **Subcutaneous and systematic mycoses (Subkutane und System-Mykosen). Global distribution of Histoplasma capsulatum (Globale Verbreitung von Histoplasma capsulatum).**—*World Atlas of Epidemic Diseases* (*Welt-Seuchen-Atlas*) (Heidelberger Academie der Wissenschaften), **3**, maps 115, 116; pp. III/133–III/134, 1959.

Map 115 (approx. 78×44 cm), in colours which gives the world distribution by countries of *Cladosporium carrionii*, *Fonsecaea* [*Phialophora*] *compacta*, *F.* [*P.*] *verrucosa*, *Sporotrichum schenckii*, *Allescheria boydii*, and *Rhinosporidium seeberi*, is supplemented by 2 smaller uncoloured maps for *Coccidioides immitis*, and *Blastomyces dermatidis* and *Paracoccidioides brasiliensis*. In addition there is a tabulation of the world occurrence of *Cryptococcus neoformans* in man, animals, and soil.

Coloured map 116 gives the distribution of *Histoplasma capsulatum* and distinguishes between soil isolates, human cases, and different degrees of histoplasmin sensitivity. This is supplemented by 2 pairs of special maps on the distribution of histoplasmin reactions and the occurrence of red-yellow podsolic soils within the U.S.A. and elsewhere, and a tabulation of histoplasmosis in animals.

All this useful data is well documented by references noted up to June 1958.

1212. Saslaw (S.) & Beman (F. M.). **Erythema nodosum as a manifestation of histoplasmosis.**—*J. Amer. med. Ass.*, 170, 10, pp. 1178–1179, 1959. [14 ref.]

From the Dept of Medicine, Ohio State University College of Medicine, comes this report of a case of histoplasmosis [*Histoplasma capsulatum*] in a girl (18 yr.) who showed a nodular rash on the legs. She had become histoplasmin positive during 3 months residence in Columbia, Ohio, having lived previously in Copenhagen, Denmark.